

Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.

User's Guide to

AFFIRMS:

Time-Share Computerized Processing

for Fire Danger Rating



**USDA Forest Service
General Technical Report RM-15**

August 1975

**Rocky Mountain Forest and
Range Experiment Station
Forest Service
U.S. Department of Agriculture
Fort Collins, Colorado 80521**

ABSTRACT

Helfman, Robert S., John E. Deeming, Robert J. Straub, and R. William Furman.

1975. User's guide to AFFIRMS: Time-share computerized processing for fire danger rating. USDA Forest Service General Technical Report RM-15, n.p. [107 p.]. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 80521

Procedures for processing fire danger data utilizing a time-share computer via a remote terminal are presented in non-technical language for persons without computer background. Input includes fuels and weather information; output includes narrative messages sent from other users, displays of observed and forecasted weather, and fire danger indexes. Observed fuels and weather input data are automatically checked for errors and archived. Examples are given.

Key words: Computer, Fire Danger Rating, Fire Weather

AUGUST 1975

²⁰⁰⁷
User's Guide to AFFIRMS:

^{bc?}
**Time-Share Computerized Processing
for Fire Danger Rating**

✓
ADMINISTRATIVE AND
FOREST
FIRE
INFORMATION
RETRIEVAL AND
MANAGEMENT
SYSTEM

²⁵
ROBERT S. HELFMAN, SYSTEMS ANALYST

⁵
JOHN E. DEEMING, RESEARCH FORESTER

²⁵
ROBERT J. STRAUB, FORESTER

¹⁷
R. WILLIAM FURMAN, RESEARCH METEOROLOGIST

ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION¹

¹Central headquarters maintained at Fort Collins, in cooperation with Colorado State University. Helfman is with the Forest Fire Laboratory, Pacific Southwest Forest and Range Experiment Station, Riverside, Calif. Deeming, now with the Northern Forest Fire Laboratory, Intermountain Forest and Range Experiment Station, Missoula, Mont., and Straub were with the Rocky Mountain Station's National Fire Danger Rating Research Work Unit, Boise Interagency Fire Center, Idaho. Furman is in Fort Collins.

AFFIRMS Reference List

<u>Command</u>	<u>Purpose</u>	<u>Section</u>
ARCH	Enter non-current weather for archiving.....	2.2.2
BYE	End a session with AFFIRMS.....	1.4.3
CTLG	Specify initial catalog entry for a station.....	2.1.1
DATE	Temporarily modify the date to affect data entry.....	1.4.6
DEL	Remove a station from the catalog.....	2.1.8
DESC	List the station catalog.....	2.1.7
DSPI	Display weather and fuels information, and fire danger ratings.....	1.5.1
DSPU	Display weighted fire danger rating.....	1.5.3
DSPW	Display weather information.....	1.5.1
DSPX	Display fire danger ratings.....	1.5.1
FCST	Enter forecasted weather for a specific station.....	3.1.1
FILE	Create, delete, list, or execute user-defined files.....	1.7
FWXZ	Change a station fire weather zone.....	2.1.10
HDEF	Define type of moisture data to be entered for a station.....	2.1.2
HELP	Get tutorial information about AFFIRMS commands.....	1.2.5
HERB	Specify the herbaceous veg. condition.....	2.1.5
LINK	Access ancillary routines.....	4.3
MODL	Specify the fuel models for a station.....	2.1.4
NAME	Change a station name.....	2.1.9
OBS	Enter regularly scheduled weather observations.....	2.2
OPT	Specify NFDRS index to be used for "manning class" and weather data permitted to be entered as missing.....	2.1.3
POST	Cause automatic routing of messages to other users.....	1.8.1
SET	Control various program operations.....	1.4.7-.11 & 4.1.1-3
SIG	Originate, modify, list, or eliminate a special interest group.....	1.6
SPC	Enter off-station or off-hour weather observations.....	2.2.2
STOW	Apply a FCST or ZONE command to a temporary grouping of stations or forecast zones.....	3.1.4
WOOD	Specify the woody veg. condition.....	2.1.6
ZONE	Enter forecasted weather trends for a fire-weather-zone.....	3.1.2
*	Producing headings on your output.....	1.7.3

AFFIRMS USER'S GUIDE

Table of Contents

1. General

1.1 Program Description

1.1.1 Organization of the User's Guide

1.2 Program Commands

1.2.1 Command Format

1.2.2 Continuing Commands on a Second Line

1.2.3 Entering Missing Data

1.2.4 Requesting AFFIRMS Operational Schedule -- NETSCHED

1.2.5 Getting Tutorial Assistance -- The HELP Command

1.2.6 Requesting Past NFDR AFFIRMS Announcements--BLURBS

1.2.7 Directory of AFFIRMS Users--USERLIST

1.3 Trouble Shooting

1.3.1 Error Detection

1.3.2 Error Correction

1.3.3 System Failures

1.4 Steering Program Operations

1.4.1 Accessing AFFIRMS

1.4.1.1 Messages Received at the Start of an AFFIRMS Session

1.4.2 Obtaining a User Number and Password

1.4.3 Terminating an AFFIRMS Session--The BYE Command

1.4.4 Escape Provision (Use of the Break Key)

1.4.5 The Control Shift

1.4.6 Changing the System Date--The DATE Command

1.4.7 Displaying "Stale" Data--The SET DAYS Command

1.4.8 Suppressing Display Headings--The SET HEAD Command

1.4.9 Displays with Station Names--The SET NAME Command

1.4.10 Requesting Statistics on DSPW Displays--The SET MEDIAN and SET MEAN Commands

1.4.11 Mixing SET Commands

- 1.5 Displaying Weather and Fire Danger Information
 - 1.5.1 Displaying Station Weather and Fire Danger Information--The DSPI, DSPW, and DSPX Commands
 - 1.5.2 Examples of Display Headings/Formats
 - 1.5.3 Displaying Weighted Average Fire Danger for a Protection Unit--The DSPU Command
 - 1.5.4 Comparative Efficiency of Display Options
- 1.6 The Special Interest Group (S.I.G.)
 - 1.6.1 Locating a Free S.I.G. Number--The SIG 999 LIST Command
 - 1.6.2 Maintaining the S.I.G.--The SIG Commands
 - 1.6.3 Example of Setting up an S.I.G.
- 1.7 Files
 - 1.7.1 Generating a File--The FILE MAKE Command
 - 1.7.2 Viewing the Contents of a File--The FILE LIST Command
 - 1.7.3 Entering Commands from a Command File--The FILE READ Command
 - 1.7.4 Producing Headings from a Command File--The *
 - 1.7.5 Obtaining a List of Saved Files--The FILE NAMES Command
 - 1.7.6 Purging a File--The FILE PRGE Command
 - 1.7.7 Summary of FILE Commands
- 1.8 Routed Messages
 - 1.8.1 Sending a Message--The POST Command
 - 1.8.2 Removing a File from the Route-List
 - 1.8.3 The Route-List
- 1.9 Managing Costs
2. Using AFFIRMS--The Fire Manager
 - 2.1 The Station Catalog
 - 2.1.1 The Initial Catalog Entry--The CTLG Command
 - 2.1.2 Specifying the Humidity Variable--The HDEF Command
 - 2.1.3 Specifying the Manning Index and Data Option--The OPT Command
 - 2.1.4 Specifying the Station Fuel Model(s)--The MODL Command
 - 2.1.5 Specifying the Herbaceous Vegetation Condition--The HERB Command
 - 2.1.6 Specifying the Woody Vegetation Condition--The WOOD Command
 - 2.1.7 Listing the Station Catalog--The DESC Command
 - 2.1.8 Removing a Station Catalog--The DEL Command
 - 2.1.9 Adding or Changing a Station Name--The NAME Command
 - 2.1.10 Changing the Station Fire Weather Zone--The FWXZ Command

2.2 Entering Observed Fire Weather Data

2.2.1 The Basic Fire Weather Observation--The OBS Command

2.2.2 The Special Observation and Archiving "Missed" Regular Observations--The SPC and ARCH Commands

2.2.3 Explanatory "Notes" for the OBS, SPC, and ARCH Commands

2.2.4 Examples of the Use of the OBS, SPC, and ARCH Commands

2.3 Obtaining Fire Weather Forecast Narrative

3. Using AFFIRMS--The Fire Weather Forecaster

3.1 Entering Fire Weather Forecasts

3.1.1 The Point Forecast--The FCST Command

3.1.2 The Trend Forecast--The ZONE Command

3.1.3 Explanatory "Notes" for the FCST and ZONE Commands

3.1.4 The Temporary Station Grouping--The STOW Commands

3.1.5 Examples of the Use of the FCST, ZONE, and STOW Commands

3.1.6 The Forecast Narrative

3.2 Amending the Fire Weather Forecast

4. Using AFFIRMS--The Regional Fire Manager

4.1 Screening Large Station Groups

4.1.1 Screening by Manning Class--The SET MC Command

4.1.2 Screening by Adjective Class--The SET AC Command

4.1.3 Double Screening

4.2 Monitoring Regional Observational Activity

4.3 Linking to Ancillary Routines

4.3.1 Summarized Station Catalogs for Regional Areas--The LINK CATLDUMP Command

4.3.2 Listing SIG Contents--The LINK SIGDUMP Command

APPENDICES

- A Examples of Typical Sessions with AFFIRMS
- B How AFFIRMS Determines Lightning Risk
- C How AFFIRMS Determines the Displayed Manning Class (MC)
- D How AFFIRMS Determines the Displayed Adjective Class (AC)
- E How AFFIRMS Weights the Inputs to the DSPU Command
- F Use of AFFIRMS in Prescribed Burning Operations
- G The Format of AFFIRMS Archived Fire Weather Data
- H Common Errors
- I Explanation of AFFIRMS Messages
- J Encoding Forms and Worksheets

1. GENERAL

1.1 ** PROGRAM DESCRIPTION **

The Administrative and Forest Fire Information Retrieval and Management System, referred to throughout this manual as AFFIRMS, is a user-oriented interactive computer program designed to permit entry of fire-weather observations from field stations simultaneously over a large network. Fire weather data may be entered from any of a number of data-terminals; then that data and the associated fire indices may be displayed at any terminal in the network.

A simple, easy-to-learn language permits entering commands to AFFIRMS from remote data-terminals. The commands fall into four broad categories:

- 1) Commands used to enter fire weather data, observed and forecasted.
- 2) Commands used to selectively display weather data and/or fire danger ratings.
- 3) Commands used to maintain station catalogs and special interest groups.
- 4) Commands used to maintain and dispatch user-constructed files containing either commands or plain-language text.

Field operation of AFFIRMS is intended to include:

- 1) Use at the Forest or District level (or similar administrative units) for the entry of observed weather data.
- 2) Use by fire weather forecasters for display of observed weather and entry of fire weather forecasts and narratives.
- 3) Use at the Forest (or similar unit) level for display of fire indices computed from both observed and forecast weather, both for that unit, and for any adjoining areas of interest.
- 4) Use at the Regional (or State) office level for monitoring fire danger over the Region (or State).
- 5) Use at the Interagency Fire Center at Boise for displaying fire danger indices for any selected grouping of Forests and/or stations.
- 6) Use at all levels to send administrative and other messages from any user to any other user(s).

1.1

One of the most powerful features of AFFIRMS is its automatic archiving program. Normally AFFIRMS retains only one regular observation per station. Entry of a new observation replaces the old one. An independent computer program, called the ARCHIVER, operates automatically every night at 2300 hours Mountain Standard Time. ARCHIVER inspects the files into which AFFIRMS places its regular observations. Any such observations which are recognized as current will be copied and added to an archive file.

ARCHIVER retains the fire danger observation records throughout the month. On the last night of the month it causes all the records for that month to be dumped out onto cards or tape and shipped to the National Fire Danger Rating project headquarters for subsequent distribution. All of this data handling is entirely automatic. The manual keypunching of fire weather data is eliminated,

The logic of AFFIRMS permits most commands to be used in any order, any number of times. Each command is processed as it is entered, and once processed, frees AFFIRMS for new tasks. AFFIRMS is intended to be user-proof; that is, most operator errors have been anticipated and can be detected and noted without disrupting the system in any way.

To avoid the necessity of repeatedly entering station-dependent semipermanent parameters, such as station elevation, agency, time zone, etc., a station catalog is used to store this information for program retrieval as needed. Commands are available for cataloging and uncataloging stations, as well as for specifying fuel models, slope classes, fuel conditions, and data availability.

Weather data can be entered as regular-schedule observations, off-hour or off-station special observations, and forecasts. In addition, a zone forecast feature permits entry of weather trends for an entire fire-weather forecast zone. The trends are then automatically applied to all stations in the zone and forecasts are generated for each station, based on the current weather.

Display commands are provided which permit a large selection of display options of weather or NFDR indices. Users may define special interest groups (S.I.G.) to permit groupings of stations outside the usual aggregations of county, state, region, etc.

File-manipulation commands allow users to create, purge, list, and execute text files. Such files are automatically made accessible to all other users, facilitating transmission of plain-language information from user to user. A posting command is included to permit automatic routing of messages to other users. Several control commands are provided to permit steering of program operations.

1.1.1 Organization of the User's Guide

We anticipate the need to revise the User's Guide from time to time. The book is designed to allow updating instructions by issuing one or more pages rather than reprinting the entire book. Note that instead of page numbers we have used chapter and sub-chapter headings for easy insertion and deletion of material. We suggest filing the Guide in a loose-leaf binder.

Chapter 1 contains instructions for all users; Chapter 2 is for the Fire Manager; Chapter 3 is for Fire Weather Forecasters, and Chapter 4 is for Regional Fire Managers. The Appendix contains more specific information.

1.2
1.2.1

1.2 ** PROGRAM COMMANDS **

Commands are entered into the keyboard of your data terminal whenever your terminal prints:

COMMAND?

This is a prompter to indicate that the program is awaiting your next request. If any other response occurs after an operation, see Appendix I for guidance.

After typing a command, hit the carriage-return key. This signals the computer that you are ready to have your command processed.

1.2.1 Command Format

All commands have a simple basic format, as described below:

- 1) All begin with a verb--a 3 or 4-letter abbreviation for the kind of operation you wish to perform. No spaces are allowed between the prompter and the verb.
- 2) Following the verb is a list of one or more operands--the numeric or alphabetic items which are the input to the command. The verb and operands must be separated from each other by your choice of either a space, a comma, or a slash.
- 3) The number of operands varies, depending on the command used. Most commands require one or more operands; some require none at all. Some commands have a variable number of operands.

Here are some examples:

```
COMMAND?CTLG 292001 1720 MST GILA 3 1 15 8
COMMAND?DATE 72/04/15
COMMAND?DSPW OBS,REG,3
COMMAND?DSPI/FCST,FOR/GILA 3
COMMAND?DEL 020209
COMMAND?POST,501,009,527,634,011,465
COMMAND?BYE
```

You will discover the purpose of each of these commands later in the User's Guide.

***-Note: In the first command, a space was used as a separator, in the second a slash, in the third a comma, and in the fourth we intermixed all three. In the fifth command there is only one operand, while the last command has none.

1.2.2
1.2.3
1.2.4

1.2.2 Continuing Commands on a Second Line

Some commands, particularly OBS, SPC, and FCST can be quite long. You may continue any command onto a second line by ending the first line with an ampersand (&) followed by a carriage return. AFFIRMS will then ask OK MORE?, and you can continue typing the command. Note that AFFIRMS simply attaches the text of the second line to the first line, leaving out the ampersand. If a separator (space, comma, slash) was needed, it must either precede the ampersand on the first line, or be the first character typed on the second line. An example of continuation:

```
COMMAND?OBS 292001,13,1,85,78,1,15,NW,5,3,90,&  
OK MORE?72,90,30,0,0,1,23
```

1.2.3 Entering Missing Data

In certain situations, if permitted, you may wish to indicate missing data for one or more operands. This may be accomplished by using the single letter M as an operand.

Only the OBS, SPC, FCST, ZONE, DSPU and ARCH commands permit missing-data entries, and only in certain operands. In an OBS command, you would indicate a missing maximum temperature this way:

↓

```
COMMAND?OBS 292001,15,1,69,65,1,30,NE,3,10,M,56,85,34,0,0,1,24
```

1.2.4 Requesting AFFIRMS Operational Schedule -- NETSCHED

Periodically the hours that AFFIRMS is available change as G.E. schedules regular maintenance or changes hardware. These changes are announced by G.E. with a message like:

```
HH  
U#=LAN68709,GEORGE,STRAUB  
  
PLEASE RUN SCHED*** FOR WEEKEND SCHEDULE CHANGES.  
  
NFDR AFFIRMS (RSH:118/25/ 4/ 5)  
  
FOR AID, ENTER: HELP  
OR CALL (208) FTS 588-9287 COM 336-2200 EXT. 287
```

1.2.4
1.2.5

The normal AFFIRMS user doesn't have the capability to run SCHED***. Therefore, the AFFIRMS staff does this for you and places the changes in a permanent file named NETSCHED. To receive a copy of the schedule, follow the illustration below.

COMMAND?FILE LIST NETSCHED

AFFIRMS NETWORK SERVICE AVAILABLE 24 HOURS EXCEPT:

OFF SAT. 14:45 TO 15:00 MDT

OFF SAT. 22:00 TO SUN. 08:00 MDT

OFF MON. 21:45 TO MON. 22:00 MDT

OFF TUE. 04:45 TO TUE. 05:00 MDT

***Note: This is an illustration only and may be very different from the actual schedule on any given date.

1.2.5 Getting Tutorial Assistance--The HELP Command

The HELP command provides tutorial information about AFFIRMS commands. No operands are used. For example:

COMMAND?HELP

AFFIRMS will respond by printing a summary of command forms on your data terminal. When the command in question has been listed, you can prevent the complete listing of these tutorials by hitting the Break-Key.

1.2.6 Requesting Past NFDR-AFFIRMS Announcements -- BLURBS

Both the National Fire Danger Rating System and AFFIRMS are dynamic systems with both technical and administrative changes occurring from time to time. If you are a new user, or an old one returning after an absence of several months, check the file named BLURBS to bring yourself up to date. An example of this request:

COMMAND?FILE LIST BLURBS

ALL USERS:

PLEASE REMEMBER THAT IF YOU EVER GET AFFIRMS ERROR MESSAGES WHICH HAVE THE LETTER 'R' AS THE 7TH CHARACTER OF THE MESSAGE NUMBER, YOU SHOULD CONTACT BOISE OR RIVERSIDE A.S.A.P.

FOR EXAMPLE...

.....THIS IS THE LETTER TO WATCH FOR:

FILE03R SEQ. FILE READ-ERROR, CODE: 107

THE 'R' STANDS FOR 'REFERRAL'. THE USUAL SUFFIX IS 'A' FOR ACTION OR 'I' FOR INFORMATION.

ALL AFFIRMS USERS:

G.E. WILL BE MOVING US FROM SYSTEM 'B' TO SYSTEM 'L' LATE THIS SATURDAY (NOV. 2) EVENING.

ALL THIS MEANS IS THAT YOUR USER NUMBER'S FIRST LETTER WILL CHANGE FROM 'B' TO 'L'. EXAMPLE: BAN68711 BECOMES LAN68722.

PLEASE REPORT ANY STRANGE GOINGS-ON AFTER THE CHANGE-OVER HAS BEEN MADE.

COMMAND?

***-Note: In this example BLURBS contained only two announcements. You were returned to the COMMAND point when the list was complete. Since the list is typically much longer, read along with the printer and terminate the listing by hitting the Break-Key when you begin to see familiar announcements.

1.2.7

1.2.7 Directory of AFFIRMS Users -- USERLIST

A directory of user numbers, names, and three or four letter abbreviations is available from an AFFIRMS file. User numbers are used for the POST command explained in Section 1.8.1. Four letter abbreviations are used in the DSP commands specifying a particular Forest or unit as explained in Section 1.5.1. Three letter airport codes of National Weather Service offices are used to obtain fire weather forecast narratives as explained in Sections 2.3 and 3.1.6. To receive this list, type:

COMMAND?FILE LIST USERLIST

This list of users is several pages long and changes infrequently. Requesting it once or twice a season should be sufficient. Some Regional Offices have saved money by sending machine copies of their user list to users in their zone of influence.

1.3 ** TROUBLE SHOOTING **

1.3.1 Error Detection

AFFIRMS can detect many common errors, including 1) bad syntax, 2) impossible or inconsistent data-values, and 3) required data entered as missing. In most cases, the specific location of the error in the command-line will be indicated with an up-arrow (↑). For example:

```
COMMAND?MODL 292001,5,A,1,0810,B,3,071235
ERROR AT                               ↑
CTL04A IMPROPER LENGTH
COMMAND?
```

The program indicates where the error was detected and a brief note is made of the kind of error found. The error code, CTL04A, may be looked up in Appendix I of this guide, where a more detailed explanation is provided. In this case, AFFIRMS detected that the manning index percentiles for a MODL command had the wrong number of digits (4 were expected, 6 were found.)

1.3.2 Error Correction

The AFFIRMS program allows two methods of correcting errors in a line of input before the carriage return key is depressed. The operator can delete individual characters in a line or the entire line if needed. Different brands of computer terminals have different symbols for these functions. The back arrow is the most common back space symbol and the "control X" the most common way of deleting a complete line. Instruction manuals, sales representatives, or the office listed at the front of this publication can help you with specific questions. Examples of these functions follow:

```
COMMAND?DSPQ-I OBS LIST 041010 040101

COMMAND?QSPI OBS LIST 041010 040101 DELETED
DSPI OBS LIST 041010 040101
```

In the first example, the back arrow caused the computer to back up one space allowing the letter I to be typed in to replace the erroneous letter Q. In the second example, the error was not recognized until the entire line was completed. It is not practical to use multiple back spaces to clear the entire line. A "Break" key or carriage return would cost about 15¢ because AFFIRMS would respond with an error message. The line was deleted by pressing the control key and the "X" at the same time. "DELETED" is printed and the carriage returns to the left hand margin. Since the computer did not see the deleted material, a COMMAND? prompt was not printed. The corrected input line was typed starting at that point. See Section 1.4.4 for use of the "Break" key.

1.3.3

1.3.3 System Failures

Because AFFIRMS is a computer program which operates on a national time-sharing computer network, it is possible for certain types of system failures to directly affect the AFFIRMS user. Under some conditions you may receive error messages which do not originate in AFFIRMS, but rather in the computer operating system itself. The more common conditions are discussed in Appendix I; examples might be:

1. SERVICE TEMPORARILY INTERRUPTED
2. THAT SYSTEM IS UNAVAILABLE AT PRESENT
3. Phone rings--but no answer
4. ::SOME MESSAGE::

LINE CALLING-ROUTINE

999 ::SOMENAME::

999 ::SOMENAME::

.....ETC.....

***-Note-In the situations listed above, the user would contact G.E. himself for the first three problems. The fourth should be referred to the AFFIRMS staff at the telephone numbers listed on the title page. The toll-free G.E. trouble number is 800-638-2960.

1.4 ** STEERING PROGRAM OPERATIONS **

1.4.1 Accessing AFFIRMS

The AFFIRMS program can be reached by a large number of computer terminals, all of similar construction but with varying keyboard layouts and hardware switches. Rather than producing instructions for all these possibilities, a few common, but important, switches are discussed. Note that not even these three necessarily exist on your machine. Hardware questions not addressed here can be referred to the staff at the address on the front piece of this manual.

<u>Switch</u>	<u>Position</u>
Duplex	HALF
Mode	ON LINE
Speed	30 (however, 15 and 10 will work)
Parity	EVEN

***-Note: Given a choice, always select 30 characters per second as your sending speed since faster printing reduces the time spent on the system and, therefore, reduces costs.

An AFFIRMS session normally begins by dialing the local telephone number of the computer network on which AFFIRMS is implemented. When the computer "answers" and sends back a high-pitched tone, the handset of your telephone is placed into the audio-coupler on your terminal. The audio-coupler has two rubber cups which exactly fit a standard phone handset. As soon as your terminal detects the presence of the carrier signal, it will send back an acknowledging signal and will light up an indicator on its control panel. Usually this light is marked as Carrier Detect, Ready-to-Send, or On-Line. No light at this point usually indicates that the telephone handset is in backwards.

Within the first five seconds after the indicator lights, you must send the character H several times. The computer's port--the device which connects the telephone line to the computer--will analyze the way in which your terminal sent the H and adjust itself to the proper speed and mode of transmission. If no response is made by the computer to your H's, check to insure that your terminal is in the "On-Line" mode.

The computer network will then request that you type in a log-on sequence containing a user-number, password, and user-name. The protocol for this sign-on is very specific and must be followed exactly since you are not yet dealing with AFFIRMS but the operating system. AFFIRMS can usually tell you what mistakes you have made, but since the computer network does not want anyone to use its services who isn't authorized to do so, it is very intolerant of errors during the log-on procedure.

1.4.1
1.4.1.1

You type in the log-on sequence and follow it with carriage return. This key signals the computer to accept your line of information. The computer will never see what you have typed until the carriage return key is hit.

Your user-number will always be specially set up in the computer system so that it has only one possible function--it can access the AFFIRMS program--nothing else! As soon as the user-number is recognized, the AFFIRMS program will be loaded and made ready for your instructions. An example follows:

```
1/
HH
2/
U#=LAN 68707,MARANA,DCP 3/ 4/
(CR)
5/
INCORRECT FORMAT, REENTER U#LAN68707,MARANA,DCP 6/ 7/
(CR)
```

- 1/ User typed in HH
- 2/ Computer has replied U#= indicating "User number equals".
- 3/ User has entered an incorrect user number, note the space between LAN and 68707.
- 4/ The carriage return key was depressed signalling the machine the entry is completed.
- 5/ Computer has rejected the user number and asked for a corrected number. You have three tries to enter a correct user number.
- 6/ User has correctly entered his user number, password, and user name. Typing started immediately following the last symbol from the computer.
- 7/ Carriage return key must be depressed at the end of each line of information to enter the information into the computer.

1.4.1.1 Messages Received at the Start of an AFFIRMS Session

After the computer has accepted your user number you will receive several messages. These messages may be from either the computer network or the AFFIRMS program.

Messages from the computer network should be ignored if they direct action on your part. The AFFIRMS staff will carry out any required tasks for all users. An example of a message that should be ignored is:

BACKGROUND USERS PLEASE RUN SCHED***FOR UPDATED SCHEDULE CHANGES.

Now AFFIRMS will print a message containing the version of the program and the communications equipment identifiers; e.g., NFDR AFFIRMS (RSH:118/25/ 4/ 5)
This line indicates you are using the AFFIRMS program. The information within the parenthesis contains the program version/port number/the remote concentrator/local

1.4.1.1

1.4.2

concentrator. These last three numbers will be required by G.E. to track down any communications problems that you report.

At this point, you may receive two kinds of messages: 1) messages from the AFFIRMS program staff, 2) messages originating from other users and sent to you by their use of the POST command. An example of these messages follows:

FOR AID, ENTER: HELP

OR CALL (208) FTS 588-9287 COM 336-2200 EXT. 287

EXC061 MSG /DEEM711 / FROM USER-NO. 711 DATED 750609:

DEEMING: TRIED TO REACH YOUR OFFICE THIS PM BUT COUNDN'T GET THROUGH
YOU CAN REACH ME AT THE 5 R.O. (JACK CARTER'S OFFICE) BETWEEN
10 AM AND 3 PM ON THE 10 TH (TUESDAY).....HELFMAN

***Note that three dashes (---) signal the end of each message.

Finally, AFFIRMS issues a COMMAND? prompter to tell you it's ready for your first command. An example of the complete sign-on procedure follows:

HH

U#=LAN68707,MARANA,STR

NFDR AFFIRMS (RSH:335/25/ 4/ 5)

FOR AID, ENTER: HELP ..OR CALL (208) FTS 5889287 COM 3453564

EXC061 MSG 'EXAMP709' FROM USER-NO. 709 DATED 741206:

HI THERE, I SEE THAT YOU HAVE SUCCESSFULLY MADE YOUR FIRST CONTACT
WITH THE AFFIRMS PROGRAM....BOB STRAUB

COMMAND?

1.4.2 Obtaining a User Number and Password

Contact the National Fire Danger Research Work Unit at the address or telephone numbers shown on the front piece of the User's Guide.

1.4.3

1.4.3 Terminating an AFFIRMS Session--the BYE Command

The BYE command is used to exit from the G. E. System and disconnect your terminal. Sessions should always be ended with BYE as this assures that all system housekeeping has been properly completed. Ending the session by simply hanging up the telephone should be avoided whenever possible.

The command can take two forms. The comments after the examples below indicate what each form does:

BYE; The session ends and the terminal shuts down.

BYE NEW; Ends the present session and permits the user to sign on with another user number, password, and ID (combination) without redialing the telephone.

Before the computer disconnects, an estimate of the cost of the session will be printed (this figure does not reflect government discounts).

Terminating an AFFIRMS session:

COMMAND?BYE

SESSION COST: \$ 2.43
0002.96 CPU 0000.09 TCH 0003.51 KC

OFF AT 08:12MST 10/30/74

***-Note: CRU - Computer Resource Units - physical equipment used
TCH - Connect time in decimals of an hour
KC - Thousands of characters sent and received.

On Mondays, AFFIRMS will automatically produce a list of the names of the files saved under that particular user number. This will prevent your creating a text file and then forgetting it. Each file costs about \$1.10 per month for the first 1,000 characters saved, and \$1.10 for every additional 1,000 saved. An example follows:

COMMAND?BYE

SESSION COST: \$ 0.54
EXC31I REMINDER: YOUR CURRENTLY-MAVED TEXT-FILES ARE:

MAVED FILE, USER NUMBER AN68700
12/23/74 TIME10:11MST
ZER0709 1 OCT SAVE709 5 NOV MICH709 11 NOV
0001.15 CRU 0000.02 TCH 0000.72 KC

OFF AT 10:12MST 12/23/74

***-Note: On Monday you automatically receive a list of your existing files and the dates that they were last used. If any are obsolete, see 1.7.5 for instructions on purging them.

1.4.4 Escape Provisions (Use of the Break-Key)

If you start to type a command and then wish to abort it and begin again, hit the Break-Key once. You will then be returned to the COMMAND? point.

The Break-Key may be hit at any time to interrupt the program in any task. It is important to realize that the task is actually abandoned. If you enter an OBS command and then hit "Break" before AFFIRMS asks for the next command, the observation will not be stored and cannot be retrieved. See Sec. 1.3.2 for use of the back space and delete functions.

Whenever the Break-Key is hit:

- 1) The date is set back to today even if a DATE command preceded (see Section 1.4.6) and
- 2) The program goes back to terminal mode even if it was processing in file mode (see Section 1.7.2).

1.4.5 The Control Shift

As you have come to expect from using typewriters, computer terminals have a shift key allowing the change from lower to upper case letters and numbers. The AFFIRMS program is case blind--that is, it makes no difference if it receives a "B" or a "b", the same action results. It is usually most convenient to set the keyboard so that shifting isn't required to send the numerals. By setting the character switch, it is possible to get both capital letters (easy to read) and numbers without shifting back and forth.

Unlike a typewriter, terminals have a second shift. It is called the CONTROL shift and will usually be located above the lefthand regular shift. By holding this key down and typing with the other hand, a series of nonprinting control signals can be sent. These control signals are identified by the strange 2- and 3-letter abbreviations on some of the otherwise normal keys.

AFFIRMS only uses one of these control functions, that is the control "CAN" or control "X". Hitting this key allows the line you are presently typing to be destroyed and retyped without returning to the "COMMAND?" prompt. This technique is particularly useful while constructing files since it permits limited repairs without having to start the entire file over.

***-NOTE: THE REMAINDER OF SECTION 1.4 SHOULD BE SKIPPED
UNTIL SECTION 1.5 HAS BEEN STUDIED.

1.4.6

1.4.7

1.4.6 Changing the System Date--the DATE Command

The DATE command permits the system date to be overridden for the extent of a series of FCST, ZONE, OBS, or ARCH commands. A DATE command must be followed by a FCST, ZONE, OBS, ARCH, STOW, or BYE command. If not, a message is issued, and AFFIRMS requests the entry again.

The DATE command takes 3 operands:

Year; A 2-digit number (e.g., 72 for 1972)
Month; A 2-digit number (e.g., 08 for August)
Day; A 2-digit number (e.g., 03 for the third)

As soon as the Break-Key is hit, the date automatically reverts back to today's.

An example of a DATE command:

```
COMMAND?DATE 72,03,27  
EXC04I DATE OVERRIDDEN 72/03/27
```

If a FCST command were now entered, the data would be considered by AFFIRMS to apply to March 27, 1972, rather than the current date.

The DATE command is of particular interest to fire-weather forecasters. They frequently want to update their forecasts in the morning utilizing yesterday afternoon's observations. By entering a DATE command which specifies yesterday's date, followed by a ZONE command, the trends specified will be applied to yesterday's observations and forecasts will be generated with today's date. (If the DATE command were not used, AFFIRMS would look for observations dated today which would not be available in the morning.)

1.4.7 Displaying "Stale" Data--The SET DAYS Command

Sometimes you may wish to display stale data from stations which have not currently reported that is, observations not dated today or forecasts dated tomorrow. The SET DAYS command allows you to do this. However, recall that AFFIRMS only holds the most current data in accessible storage. Today's OBS destroys yesterday's OBS.

The SET DAYS command has the form:

```
SET DAYS nn  
SET DAYS o
```

Where nn indicates how many days you want the computer to look back for data in subsequent displays. You may use any number from 0 to 31 or -1. A value of 2 will cause data for today or up to 2 days earlier to be displayed. A value of zero cancels previous SET DAYS commands.

To limit displays of forecasts to tomorrow's forecast only, a value of -1 can be used. If the DSPU command is used and tomorrow's forecast DSPU is desired rather than the forecast for today, the SET DAYS -1 must be used.

***-Note: AFFIRMS shows only the latest data entered. SET DAYS simply allows you to ignore or accept stale data as you wish.

1.4.8
1.4.9
1.4.10

4.8 Suppressing Display Headings--The SET HEAD Command

Another type of SET command is SET HEAD. This command allows you to control whether headings will appear above data listed with the DSPW, DSPI, DSPX, or DSPU commands. For example, if you were doing several DSPW displays, you could allow the heading on the first one and turn off the headings on the subsequent ones. This saves both time and computer costs, however, it takes the savings from three or more headings to offset the cost of processing this command. The SET HEAD command takes two forms:

SET HEAD OFF; Headings will not be printed on subsequent displays.
SET HEAD ON; Headings will be restored on subsequent displays.

4.9 Displays with Station Names--The SET NAME Command

The AFFIRMS program is structured to begin each line of display with the six-digit station number. If the user's operation is better served by a display identified with the station name, this number can be replaced with a six-letter abbreviation of the name. This command has the form:

SET NAME ON; Each display line starts with the name
SET NAME OFF; Each display line starts with the number

4.10 Requesting Statistics on DSPW Displays--The SET MEDIAN and SET MEAN Commands

A pair of SET commands exists to allow the user to get both the median and/or the mean values of the weather elements displayed with the DSPW command. They have the form:

SET MEDIAN ON; Median values follow the display
SET MEAN ON; Mean values follow the display

Both of these commands are terminated by the command SET MEDIAN (or MEAN) OFF, or when the session ends.

If the SET commands precede a DSPW OBS or DSPW SPC in which the data from at least 3, but no more than 20 stations is retrieved, the median or mean values of dry bulb temperature, relative humidity, windspeed, maximum and minimum temperatures, maximum and minimum relative humidities and precipitation duration are printed out at the bottom of the display.

The median value is defined as "that value above and below which an equal number of observations will be found when all of the observations are arranged in order of magnitude." The mean is "the average numerical value of the set."

1.4.11

1.4.11 Mixing SET Commands

To save typing required of both the system and the user, all SET commands can be combined on one line. The only rule is to retain the pair(2) type structure.

For example:

```
SET NAME ON,DAYS 5,HEAD OFF,MEAN ON
```

This example is perfectly legal and is interpreted by the computer as:

```
SET NAME ON  
SET DAYS 5  
SET HEAD OFF  
SET MEAN ON
```

***Note: Other SET commands used by states or other large areas are illustrated in Section 4.1.

1.5 ** DISPLAYING WEATHER AND FIRE DANGER INFORMATION **

The commands used to display weather and fire danger ratings are of the form:

VERB TYPE,SCOPE,nnnnnn,mmmmmm

***The SET commands influence the content of displays. See Sections 1.4.7-1.4.11 and 4.1.1-4.1.3.

1.5.1 Displaying Station Weather and Fire Danger Information-- The DSPI, DSPW, and DSPX Commands

The command VERB determines if weather or computer fire danger indices are displayed.

Three verbs are used:

DSPW; The W indicates a weather display (wweather).
DSPI; The I indicates a fire danger rating display (indices).
DSPX; The X indicates an abbreviated fire danger rating display.

TYPE specifies whether observed or forecast data is to be displayed. Three operands are used:

OBS; Weather or fire danger data derived from the regular, scheduled fire weather observation.
SPC; Weather or fire danger data derived from off-time or off-site weather observations
FCST; Predicted weather or fire danger ratings.

The second operand, SCOPE, specifies what geographical or political criteria are to be used in selecting the data to be displayed. Only those stations which meet your criteria will appear in the output. Nine operands are available to specify the scope of the display:

REG; U.S. Forest Service Region, or Regions
STAT; State
CNTY; County
ZONE; Fire weather zone
SIG; Special-Interest-Group (S.I.G.)
ID; Single station or range of stations
FOR or UNIT; National Forest or administrative unit
LIST; List of specific station numbers

The third and fourth operands (nnnn... and mmmm...) are used to indicate which region, which range of stations, which county, etc. that the scope operand is specifying.

You may use any combination of verb, type, and scope to create any selection criteria you wish. Below are some examples of the more commonly used combinations:

DSPW OBS,ID,020503 (Display OBS weather for station number 020503 only.)
DSPI SPC,ID,201009,495689 (Display SPC indices for all stations with numbers between 201009 & 495680.)
DSPW OBS ZONE 303 3 (Display OBS weather for all stations within fire weather zone 303 in Region 3.) Note that both the zone number and Forest Service Region number must be entered.

1.5.1
1.5.2

DSPW,FCST FOR,KOOT, 1 (Four letter abbreviations for units and Forests are found in the USERLIST, Section 1.2.7. Note that Forest Service Region number must be entered.)
 DSPI OBS,UNIT,CBLM,2 (Display OBS indices for BLM stations in the Colorado BLM, Forest Service Region number must be entered.)
 DSPI FCST,STAT,29 (Display FCST indices for stations in state number 29.)
 DSPI OBS,CNTY,2920 (Display OBS indices for stations in county 20 of state 29.)
 DSPW FCST,REG,3,4,5 (Display FCST weather for stations located in Regions, 3,4,5.)
 DSPX OBS,SIG,006 (Abbreviated display OBS indices for those stations previously placed in S.I.G. 006.)
 DSPW OBS,LIST,020202,045691,292001,045302,045228 (Display OBS weather for the listed stations - up to 18 numbers can be entered.)

***Note: Each fire weather station has been assigned a 6-digit identifier code by the National Weather Service. The first 2 digits indicate the state; the second pair, the county; and the third pair, the specific station within that county.

1.5.2 Examples of Display Headings/Formats

There are four display formats. Examples of the display headings are:

DSPX OBS, DSPX FCST, or DSPX SPC

-----05/01/74-----OBS-----13:19GMT-----
 STA-NO MS DY HR LR MR IC SC EC OI BI FLI MC AC

DSPI OBS, DSPI FCST, or DSPI SPC

-----05/01/74-----OBS-----13:20GMT-----
 STA-NO MS DY HR DBT RH WS LR MR HB V FF 10 100 IC SC EC OI BI FLI MC AC

DSPW OBS, or DSPW SPC

-----05/01/74-----OBS-----13:22GMT-----
 STA-NO DY HR W DBT DPT RH YL ML DIR WS 10 TMX TMN HMX HMN PD PPTAMT

DSPW FCST

-----05/01/74-----FCST-----13:22GMT-----
 STA-NO DY HR W DBT DPT RH AL TL DIR WS TMX TMN HMX HMN P1 P2

***Note: Due to space limitations, the maximum value for RH, 10, LR, MR, IC, SC, EC, OI, BI, and FLI in the DSPI display is 99.

Abbreviations used in the displays are shown below:

AC;	Adjective class of day (See Appendix C)
AL;	Predicted LAL for the current calendar day from observation time until midnight (<u>A</u> fternoon)
BI;	Burning Index
DBT;	Dry-bulb temperature
DIR;	Wind direction
DPT;	Dew point
DY;	Day of month
EC;	Energy Release Component
FF;	Fine fuel moisture
FLI;	Fire Load Index
HB;	Herbaceous vegetation condition
HMN;	24-hour minimum RH
HMX;	24-hour maximum RH
HR;	Hour valid time
IC;	Ignition Component
LR;	Lightning Risk
MC;	Manning class of day (See Appendix B)
ML;	Observed LAL from midnight to current observation time (<u>M</u> orning)
MR;	Man-caused Risk
MS;	Model-slope class
OI;	Occurrence Index
PD;	Observed 24-hour precipitation duration
PPTAMT;	Observed 24-hour precipitation amount
P1;	Predicted precipitation duration, first 16 hours after current day's OBS time
P2;	Predicted precipitation duration, remaining 8 hours of 24-hour period
SC;	Spread Component
STA-NO	Station-number
TL;	Predicted LAL for <u>T</u> omorrow
TMN;	24-hour minimum temperature
TMX;	24-hour maximum temperature
V;	Woody vegetation condition
W;	State of weather
WS;	Windspeed
YL;	Observed LAL for the previous day (<u>Y</u> esterday)
10;	10-hour timelag fuel moisture (measured or computed stick moisture content)
100;	100-hour timelag fuel moisture

1.5.3

1.5.3 Displaying Weighted Average Fire Danger for a Protection Unit -- the DSPU Command

The DSPU command allows the AFFIRMS user the flexibility to produce a display of the weighted fire danger information associated with up to nine individual stations. This command provides a mechanism for the user to consider the relative importance of all the available stations in the area of interest and to produce a single integrated display of the fire danger on that area. See Appendix E for details on the DSPU weighting method.

The command has the form:

DSPU TYPE,REGION,STA-NO-MODEL-SLOPE,WEIGHTING FACTOR

In which:

Type; OBS, SPC or FCST (See 1.5.1)

Region; A one- or two-digit USFS Region number in which all the stations which follow are found.

Sta-No-Model-Slope; 8 characters: 6 for station number, 1 for fuel model, 1 for slope class. A maximum of 9 stations is allowed.

Weight; A one- or two-digit number indicating the percent of the final rating that this station is to contribute.

For example:

```
COMMAND?DSPU OBS 5,045408 G2 20,045409 I3 25,045413 A1 15,&  
OK MORE?045110 B3 30,045414 B3 10
```

When preparing this command, check to insure that the sum of all the weighting factors is 100%. In the event that one or more of the stations cited in the command lack current OBS, SPC or FCST information required for the execution of the command; the computer will automatically take action. The existing stations will have their weighting increased proportionately to once again total to 100%. Whenever this re-weighting is done, a message will be issued warning the user that the display is based on fewer stations than he intended.

It is possible to request a DSPU at a time when some of the requested stations have a forecast for today and others have for tomorrows forecast. To prevent a weighted product for two different dates, the SET DAYS command (See Section 1.4.7) takes on a new significance. Without a SET DAYS command the program will select those stations with a forecast valid for today. If tomorrows forecast is desired, a SET DAYS -1 is required.

1.5.3

Since the same station can be called in any number of different DSPU commands and assigned different weighting factors, no station group facility like the S.I.G. (see Section 1.6) has been provided. To avoid the tedium of typing in several DSPU's each day with all the associated station data, create a command file (see Section 1.7) to be executed each day.

If two command files had been created earlier with DUOBS700 containing the above example and DUFST700 requesting forecasted DSPU's, the following example might result:

```

HH
U#=LAN68700,LOOKIE,STR

NFDR AFFIRMS (RSH:335/59/ 5/15)
FOR AID, ENTER: HELP ..OR CALL (208) FTS 588-9286 COM 345-3564

COMMAND?FILE READ DSPU700

FILO2I NOW EXECUTING FILE /DSPU700
--07/24/75--OBS---22:35MGT--
  DY   IC   MC   AC
-----
    24   27   3+   M
SYNO6I END-OF-FILE ENCOUNTERED

COMMAND?SET DAYS -1
COMMAND?FILE READ FSTDU700

FILO2I NOW EXECUTING FILE 'FSTDU700'
--07/24/75--FCST--22:36GMT--
  DY   IC   MC   AC
-----
    25   46   4-   UH
SYNO6I END-OF-FILE ENCOUNTERED

COMMAND?BYE

SESSION COST: $ .40
0003.71 CRU      0000.01 TCH      0000.41 KC

OFF AT 15:35MST 01/24/75

```

In the above example, we obtained a DSPU for observed weather and a second DSPU for tomorrows forecast weather. Note that the displayed manning classes always use the 9-class system (See Appendix C).

1.5.4

1.5.4 Comparative Efficiency of Display Options

Users should be aware of the varying costs of the display options. The following list is in order of increasing costs (decreasing efficiency). The display scopes grouped in parantheses are equally efficient:

(REG,ZONE,STAT,CNTY,ID,LIST)SIG,(FOR,UNIT)

The FOR and UNIT scopes should be avoided when possible since they require the most computer time and, therefore, result in the highest cost to the user. This does not mean that you should never use them, rather they should not be adopted for day-to-day routine operations. The SIG scope joins the lower cost group if it contains five or more stations.

1.6 ** THE SPECIAL INTEREST GROUP **

Frequently, users of AFFIRMS will find that they wish to display data from several stations which do not conform to any geographical or political grouping. A typical example would occur on the Tahoe National Forest in California. This forest adjoins the Toiyabe National Forest which is in a different region. The use of a display by forest would, because of the extent of the Toiyabe, supply more data than the Tahoe would probably want to see. In such a case, a user would create a list of stations from both forests; such a list would be called a special interest group (S.I.G.).

1.6.1 Locating a Free S.I.G. Number-- The SIG 999 LIST Command

S.I.G.'s are identified with a 3-digit number. Since the groups are constructed in a random manner by the various AFFIRMS users, it is not obvious which S.I.G. identifiers are free. To locate a vacant S.I.G., enter this command:

```
COMMAND?SIG 999 LIST
```

```
INT111 AVAILABLE GROUP: 23
```

In this case, the computer has indicated that S.I.G. 023 is available.

*** Note: The computer will not print a leading "0" but the "0" must be entered by the user e.g. use 023 for the SIG commands.

1.6.2 Maintaining the S.I.G.--The SIG Commands

The SIG verb is used for maintaining a special interest group. One can: 1) add stations to the group, 2) delete stations from the group, 3) empty the group, or 4) list out the group.

The forms of the command are:

SIG nnn,ADD,M1,M2,M3,.....; Where nnn is the S.I.G. number, M1,M2,...
are 6-digit station numbers to be added to the S.I.G.

SIG nnn,DEL,M1,M2,M3,...; Where the M1,M2... are station numbers to be deleted.

SIG nnn,LIST; The stations in the S.I.G. are listed.

SIG nnn,CLR; All stations are removed from the group, and the
owner's jurisdiction over the group ceases.

The S.I.G. number (nnn) must be 3 digits long (e.g., 004).

If an SIG nnn ADD command is entered for a S.I.G. which is not already assigned, the S.I.G. is automatically assigned. If the S.I.G. is already owned, a message will notify you.

1.6.2

1.6.3

Requests to 1) delete stations not in the list, and 2) add stations already in the list, will be ignored--no message will be given.

If you attempt to expand a S.I.G. to more than 20 stations, as many stations as can be accommodated will be added; the rest will be ignored. You can determine how many stations in your list were actually added because the up-arrow will indicate the first station which was **NOT** accepted from the ADD command.

If you list out a group and there are no stations in it, you will receive the message: "GROUP EMPTY". If the group is not owned, you will get: "GROUP UNASSIGNED".

1.6.3 Example of Setting up a S.I.G.

Here is an example of setting up a special interest group; the comments after each command describe its function:

COMMAND?SIG 999,LIST (Asking for the number of a free group)

INT11I AVAILABLE GROUP: 5

COMMAND?SIG 005,ADD,020209,021201 (this makes the S.I.G. "yours")

COMMAND?SIG 005,LIST (Checking the contents of the S.I.G.)

INTEREST GROUP CONTAINS THESE STATIONS:

020209 021201

COMMAND?SIG 005,DEL,021201,020209 (Deleting two stations)

COMMAND?SIG 005,LIST (Again, checking the contents)

INT04I GROUP EMPTY

COMMAND?SIG 005,CLR (Freeing the group back to the pool)

COMMAND?SIG 005,LIST (The S.I.G. should now be free)

INT07I GROUP UNASSIGNED

1.7 ** FILES **

Files are created to make use of the computers memory capabilities. Either messages which can be transmitted to other users (text files) or frequently used series of AFFIRMS commands (command files) are stored. You may create files (FILE MAKE), view the contents of a file (FILE LIST), execute the commands in a file (FILE READ), or delete a file from the computer (FILE PRGE). Only the creating user may purge a file. For instance, a fire weather narrative can be placed in a file, then any user can view the file by using a FILE LIST command. The same user may have created a file containing the commands needed to display fire danger indexes; a FILE READ command is used to execute the commands in this file.

1.7.1 Generating a File--The FILE MAKE Command

In order to generate a file, respond to the computer's prompt, COMMAND?, by typing FILE MAKE and a carriage return. The computer will then ask you for a name for a file by typing FILE NAME?. Type in a name and hit the carriage return.

File names must be 4 to 8 characters in length, with the last 3 digits of your user number as the last 3 characters of the file name. For example, user number UAN68552 might make a file called JUNK552 or JU552 or even just J552. Using the last 3 digits of the user number in your file names assures that you will not select the same file name as another AFFIRMS user. Never use blanks, commas, periods, or any other special characters as part of a file name. File names beginning with FWX are exempt from the user number requirement.

After you have supplied a file name, AFFIRMS will instruct you to enter the information you wish stored in the file, one line after the other. When you have no more to enter, hit the Break-Key after the last carriage return. See 1.3.2 for instructions on whole line repair.

Example:

```
COMMAND?FILE MAKE
FILE NAME?HEF309
FIL!!! HIT 'RETURN', THEN 'BREAK' AFTER LAST LINE OF TEXT
READY FOR INPUT
JUNE 25/1300MDT
```

BOB, WHENEVER YOU ROUTE A MESSAGE TO THE FORECASTERS, INCLUDE NUMBERS 005 and 010.

***Note: If you try to make a file with the same name as one you already have stored, a message will tell you so. You will be allowed to overwrite your

1.7.1
1.7.2
1.7.3

old file with new text if you answer the question with YES. Note that the new text would replace the old text; it is not added to the existing old text. If you type NO, the computer will return to the COMMAND? point and you must start over with a new FILE MAKE and another file name.)

(Each of these lines was ended with a carriage return. The Break-Key was hit after the file was completed.)

1.7.2 Viewing the Controls of a File--The FILE LIST Command

Once a file has been created, it's contents can be reviewed with the FILE LIST command. The only requirement is that the user be able to supply the FILE NAME.

Example:

COMMAND?FILE LIST OBS709

(At this point the computer will print a complete copy of what user number 709 typed into FILE OBS709.)

Frequently used FILE LIST commands that do not follow the general rules stated in 1.7.1 are:

FILE LIST BLURBS	See Section 1.2.6
FILE LIST NETSCHED	See Section 1.2.4
FILE LIST USERLIST	See Section 1.2.7
FILE LIST FWX _{mm}	See Section 3.1.6
FILE LIST ARCHSTAT	See Section 4.2

1.7.3 Entering Commands from a Command File--The FILE READ Command

A file can consist of a series of valid AFFIRMS commands; such a file would then be a command file. If the file is executed using the FILE READ command, AFFIRMS takes its commands from that file instead of your terminal's keyboard. One might construct a file containing several display commands. Then, by entering a FILE READ command, the stored commands would be processed one after the other. If this list of commands were needed every day, you would save the trouble of typing them each time they were needed.

1.7.3
1.7.4
1.7.5

Example:

```
COMMAND?FILE MAKE
FILE NAME?R3WEA300
FIL111 HIT 'RETURN', THEN 'BREAK' AFTER LAST LINE OF TEXT
READY FOR INPUT

SET NAME ON
DSPI OBS STAT 29
DSPI OBS STAT 02
```

Then, each day, instead of entering those three commands separately, you could enter:

```
COMMAND?FILE READ R3WEA300
FILO2I NOW EXECUTING FILE 'R3WEA300
```

AFFIRMS would execute the three commands in sequence.

1.7.4 Producing Headings from a Command File -- The *

Whenever AFFIRMS receives a typed line preceded by an asterisk, *, it parrots it right back on your printer. In this way you can insert special comments or headings on output. This procedure consists of creating a command file which contains the needed commands with heading and comment lines inserted. The location of these marked lines in the file determines where they will appear on the output. For example:

```
*HERE IS A DISPLAY OF THE OBSERVED WEATHER AND INDICES FOR ARIZONA
DSPI OBS STAT 02
*THE FORECASTED FIRE DANGER INDICES FOR REGION 9 ARE:
DSPX FCST REG 9
```

The two displays obtained with this command file will appear with those headings.

1.7.5 Obtaining a List of Saved Files--The FILE NAMES Command

Users commonly lose track of files which they have saved. There are two ways to obtain a list of the files saved under your user number.

1.7.5
1.7.6
1.7.7

The first is automatically printed on Mondays with the BYE when you sign off.
The computer will respond as follows before disconnecting your terminal:

COMMAND?BYE

SAVED FILES, USER NUMBER AN68709
05/01/74 TIME16:42GMT

HELF709 1 MAY R3709 29 APR
HELF2709 1 MAY

***-Note: The dates following the file name are the last time that file was used. Every file listed here costs \$1.10 per month; therefore, every Monday when AFFIRMS automatically produces this display you should check these dates and purge any obsolete files that exist.

The second command is FILE NAMES. The computer will react as if BYE were typed on Mondays except instead of disconnecting the terminal, you will be returned to the COMMAND? point after the accounting is printed.

1.7.6 Purging a File--The FILE PRGE Command

To remove a file from the computer the FILE PRGE command is used. Only the user that created a file may purge that file. An example command is:

COMMAND?FILE PRGE R3WEA300

1.7.7 Summary of FILE Commands

FILE MAKE;	Specifies that you are going to generate a text file.
FILE LIST;	Specifies that you want the contents of a text file printed.
FILE READ;	Specifies that commands are to be read directly from a text file, instead of the keyboard.
FILE NAMES;	Specifies that you want a list of the names of text files saved under your user number.
FILE PRGE;	Specifies that you wish a file purged (removed from storage).

1.8 ** ROUTED MESSAGES **

A very useful administrative feature of AFFIRMS permits any user to route a message to as many as 20 other users in the AFFIRMS network. The procedure consists of putting a message in a text file and instructing the computer to print out that file automatically when a particular user signs on.

When any user signs on to AFFIRMS, his user number's last 3 digits are checked to see whether they appear in that special route-list--a list that is generated by the message originator. If the user's number is found in the list, he receives a copy of the message and his number is automatically removed from the list. Therefore, he receives the message only once.

1.8.1 Sending a Message--The POST Command

An example of the POST command is:

```
COMMAND?POST lll,mmm,nnn,.....  
FILE NAME?HELF009
```

where *lll,mmm,nnn*, etc. are the last three digits of the user numbers which are to receive the message. You can specify up to 20 numbers to this route list. The same user number may be entered more than once in the list; this causes multiple postings of the message to that user before the post is satisfied. The user numbers may be found in the USERLIST explained in Section 1.2.7.

After you have entered a POST command, AFFIRMS will ask for the name of the file to be sent. It must be a file you have already created. In the example, the message was contained in the file HELF009.

Only one route-list for a specific file name may be in effect at any one time. Entering a POST command that cites a file which is currently posted simply overrides the earlier posting request and produces a new route-list.

It is permissible for one user to enter a POST command which cites a text file owned by another user. However, if the owner of the file purges it before everyone on the route list receives it, these late comers will only get an error message.

1.8.2
1.8.3

1.8.2 Removing a File from the Route-List

Entering a POST command with no user number specified causes the computer to erase the route-list for that file.

Example:

```
COMMAND?POST  
FILE NAME:HELF009
```

Since no user numbers followed the verb, POST, the route-list for HELF009 is deleted.

-Note: The text file cited by a POST command is ***NOT automatically purged when the post is satisfied. The posting user has this responsibility. In other words, in this example, the text file HELF009 is retained until eliminated by the FILE PRGE command (Section 1.7.5).

1.8.3 The Route-List

If you enter a POST command without specifying a user number or file name, a summary of posted files and route-lists will be printed out on your terminal. Remember that as each user in a route-list receives the message, his user number is removed from the route-list. By examining the route-list, one can determine which addressees have and have not received the message.

Example:

```
COMMAND?POST  
FILE NAME?      (Do not answer - just hit Carriage Return)  
  
EXC07I FILE /NEW509 POSTED ON 750503  
FROM USER NO. 509 to: 503 504 505 506 508
```

File NEW509 was posted on May 3, 1975, by user number 509. Users 503, 504, 505, 506, and 508 have not yet received it. If other files had been posted and not yet received by all the users on their respective route-lists, the above example would have included all of them.

1.9 ** MANAGING COSTS

In almost every operation certain overhead costs exist. This same general rule applies to computer operations as well. This basic rule has two cost impacts on the AFFIRMS user. First, if a toll telephone call is required to reach the computer port, a base minimum fee for 3 minutes is charged by the telephone company even if the session is completed in less than that time. The second overhead charge of approximately \$.30 is involved in just signing on and off the G.E. Timeshare System. Since the telephone charge is quite variable depending on location, it has not been included in the following examples. The base computer charge on the other hand is included in the figures used below.

Several factors determine cost of inputting data and commands into AFFIRMS. The first is the number of operations sharing the overhead charges mentioned above. Signing on to enter the fire weather observations for one station is more expensive on a per-station basis than signing on to enter data for 6 to 10 stations. The second point involves the time it takes the operator to complete the session. Time affects both of the general charges. The telephone cost is figured on a 3-minute minimum and each additional minute after that. The computer service, on the other hand, charges a flat rate of \$.116 per minute. Therefore, the sooner the session is completed, the lower the resulting cost. Several techniques are available which will decrease the time on the terminal. These remarks are aimed at particular groups of users. Therefore, consider each logically before considering their use in your particular application.

Output

Using Command Files: Once these files have been organized, the user references the file name with a FILE READ command. The computer is able to recall the file's contents and execute the commands found there. Each command entered in AFFIRMS has an associated cost. Therefore, the contents of the file must be large enough so that the saving in reduced typing time offsets the cost of the FILE READ command. If the operator is a fair typist, the command files need to be about 10 lines long to make the command file pay. However, the convenience of automatic operation might well justify files of only three lines. Finally, remember that each file costs \$1.10 per month as a minimum.

Using Paper Tape: If your terminal has a paper tape unit, the same saving is possible as with command files. Actually, this method will be less expensive since no files are stored at \$1.10 per month and processing of the FILE READ command is not required. The tape is started and stopped automatically by the computer as it reads one command at a time. These tapes should be prepared on plastic film rather than the more easily damaged paper since they will be used over and over.

Selecting Display Commands: The relative efficiency of the different options for the display scope is discussed in Section 1.5.4. However, there are other factors to consider. To minimize cost you should display only the data you need with the fewest possible number of the most efficient commands.

For instance, by using the DSPX instead of the DSPI command 20 characters less per line are printed. So, if the DSPX contains sufficient information, use it.

Let us say that you are interested in 10 stations--5 on your Forest and 5 on adjacent BLM land. Creating either a S.I.G. of 10 stations or using the LIST scope option would result in a cost of \$.82 if a DSPX command is used. On the other hand, if you displayed 5 with one command and then the others with a second, the cost would be about \$1.23. The saving amounts to about \$40 for a 100-day season when one display command is used instead of two.

The cost of the DSPU displays is calculated in a completely different way since only one line of output is produced. The base cost is approximately \$.25 for a DSPU of two stations. For every additional station add \$.04. For instance, a 9 station DSPU costs $$.25 + 7(.04) = $.53$.

Input

OBS, FCST, and ZONE commands can be entered using magnetic tape (via a command file, Section 1.7.2) or paper tape. The above comments concerning the utility of using these two media apply here, too. But, since the OBS, FCST, and ZONE commands change daily, a new tape must be made every day. Tape making and correcting is an art in itself, so a fair test of tape as an entry method will require considerable skill development before a valid comparison against keyboard entry can be made. The skill of the operator will determine that point where the volume of data to be entered will make using tape pay. For a good typist who is proficient at making tapes, our experience is that the break-even point averages about 10 lines of input. If your input is more than 10 stations, a tape prepared and checked for errors "off line" will usually prove a better buy than "on line" keyboard data entry.

2. USING AFFIRMS -- THE FIRE MANAGER

2.1 ** THE STATION CATALOG **

The catalog is a data file maintained by the user which contains permanent and semi-permanent information about each of his fire-danger rating stations. By storing such information in the catalog, you are saved the trouble of repeatedly supplying it when you enter observations for that station. A station must be cataloged before weather data may be entered for it.

A station may be cataloged at any time, even weeks or months before it is ever actually referenced. In normal use, a station will be cataloged once prior to the first time that observations are entered for it.

Once a station is cataloged by a particular user, no other user may modify or destroy that station entry. Any user, however, can simply inspect a station catalog with the DESC command.

2.1.1 The Initial Catalog Entry--The CTLG Command

The CTLG command makes the initial catalog entry for a station.

The following list contains a description of the operands for the CTLG command in their order of entry:

ID;	The 6-digit numerical station identifier. Obtain number from fire weather forecaster. Ninety series stations are not archived.
ELEVATION;	Feet above sea level, 1-5 digits.
TIME ZONE;	The standard time zone in which the station is located (BST, HST, YST, PST, MST, CST, EST, AST)
FOREST OR UNIT NAME;	A 4-letter code for the National Forest or administrative unit in which the station is located. Forest names are to be represented by the first four letters or a phonetic abbreviation. BLM units can be shown as the first letter of the state and then BLM. BLM units in Nevada would then be NBLM.
REGION#;	The U. S. Forest Service Region number in which the station is located (1-10). Enter the number even if the station is run by an agency other than the Forest Service.

2.1.1

OBSERVING AGENCY; A 1-digit code indicating the agency which operates the station. Use the following table:

- 1 Forest Service
- 2 Bureau of Land Management
- 3 National Park Service
- 4 Bureau of Indian Affairs
- 5 State Agency
- 6 City or County Agencies or Special Districts
- 7 Private or Commercial
- 8 Other Federal Agencies
- 9 Unknown

STANDARD OBS TIME; A 2-digit number indicating to the nearest hour, the time at which the station normally takes fire weather observations (e.g., 15 for 1500 hours). The time-of-observation entered in OBS and ARCH commands will be required to be within 2 hours of this standard observation time. Remember, Standard, not Daylight Savings Time.

FIRE WEATHER FORECAST ZONE; A three-digit number (001-999) assigned and used by the National Weather Service to designate the fire-weather forecast zone. The first digit corresponds with the Forest Service Region number (e.g. 503 is a fire weather zone in California).

STATION NAME; An entry of one to six alphabetic characters. It can be the complete or abbreviated name of the fire weather station. If any doubt exists about the clarity of the abbreviation, use all six letters.

If you refer to an already cataloged station in a CTLG command, the message CATALOG SUBSTITUTION is given. The net effect of such a recataloging is 1) the station's catalog entry is destroyed, 2) any current OBS, SPC, or FCST data for that station is destroyed, and 3) the command is processed and a new catalog entry created.

***-Note: A station catalog-entry is not complete until the HDEF, OPT, MODL, HERB, and WOOD commands have also been given for that station. This must be done when initially cataloging a station, or when making a catalog substitution (recataloging).

The NAME and FWXZ commands allow modification of the fire weather zone or station name without recataloging.

2.1.1
2.1.2
2.1.3

Example of CTLG command:

```
COMMAND?CTLG 020202 6800 MST KAIB 3 1 13 308 MEADOW
```

This station's ID number is 020202; it is at an elevation of 6800 feet; in Mountain Standard Time Zone, on KAIBAB NF, in Region 3. Regular fire weather observations are taken by the Forest Service at 1300, and this station is part of Fire Weather Zone 308. The name of this station is Meadow.

2.1.2 Specifying the Humidity Variable--The HDEF Command

The HDEF command identifies the type of moisture-variable which AFFIRMS is to expect in OBS, SPC, or ARCH weather data from that specific station. Two operands are used with HDEF:

ID; The 6-digit station identifier

HUMIDITY CODE; A 1-digit number indicating the moisture variable to be entered.

1 = Wet-bulb temperature (Deg. F)

2 = Relative Humidity (percent)

3 = Dewpoint temperature (Deg. F)

The HDEF command must be given sometime between the time that a station is cataloged (or recataloged) and the first time that OBS, SPC, or FCST commands are used for that station.

The humidity variable specification may be changed at any time, as desired.

An example of the HDEF command:

```
COMMAND?HDEF 020202 1
```

We have specified that station 020202 will enter wet-bulb temperature.

2.1.3 Specifying the Manning Index and Data Option--The OPT Command

The OPT command is used to tell AFFIRMS what type of observational data is to be entered and which NFDRS index or component is to be the basis for manning, the Manning Index (MI). The OPT command requires three operands:

2.1.3

ID; The 6-digit station identifier

DATA; A 1-digit option number

MI; A 2-or 3-letter abbreviation of the Manning Index

The DATA operand permits you to specify that certain data operands in the OBS and SPC commands may be entered as missing without causing an abort of the command. Data classified as not needed under the specific DATA option should be entered if available. The DATA operand can be determined from the following table:

<u>DATA Option</u>	<u>Max./Min. Temp.</u>	<u>Max/Min. Hum.</u>	<u>10 HR T/L (Fuel Stick Moisture)</u>
1	Required	Required	Required
2	Required	Required	Not Needed
3	Required	Not Needed	Required
4	Not Needed	Not Needed	Required
5	Not Needed	Not Needed	Not Needed

Since AFFIRMS must make more assumptions as the option level increases, it is desirable to use the lowest possible number consistent with available data. Option 3 is the most commonly used. Such a station would be equipped with fuel moisture sticks and a max.-min. thermometer in addition to the standard instrumentation. Option 1 would require a hygrothermograph and fuel moisture sticks. Use Option 5 if only Max./Min. Temp or Max./Min. Hum can be provided. AFFIRMS always uses data-level 2 for FCST commands, regardless of what data-level has been specified for the station.

The MI operand is the abbreviation of the NFDRS component or index on which the manning guides of the suppression organization are based.

<u>Manning Index (MI) Operand</u>	<u>Manning Index</u>
IC	Ignition Component
SC	Spread Component
EC	Energy Release Component
OI	Occurrence Index
BI	Burning Index
FLI	Fire Load Index

Example of the OPT command:

COMMAND?OPT 020202 3 BI

We have specified that station 020202 will be entering Max. and Min. temperatures and fuel stick moisture and will use as its MI, the Burning Index.

***-Note: If an OPT command is not entered for a station, the computer will assume data-level 1 and the BI as the MI.

2.1.4 Specifying the Station Fuel Model(s)--The MODL Command

The MODL command is used to tell AFFIRMS what kind of fuel models, slopes, and manning levels are to be used for a given station. Refer to the following table for descriptions of the operands and their order:

ID;	The 6-digit station identifier
DISPLAY-CLASSES;	A 1-digit number, either 3, 4, 5, 6, 7, 8, or 9, indicating how many manning classes are to be displayed in DSPI and DSPX outputs. (See Appendix C)
FUEL MODEL;	A 1-letter code for the fuel model (A to I only)
SLOPE CLASS;	A 1-digit number (1, 2, or 3 only)
MI90&97;	A 4-digit number indicating the 90th and 97th percentile values of manning index.*** For example, if the MI90 and MI97 were 4 and 12, respectively, you would enter 0412. (Where not known, enter 0000). (See Appendix C)

If more than one model is to be specified, simply repeat the fuel model name-slope class-MI90&97. This command permits a variable number of operands; for one model, there will be 5=(2+3), for two models, 8=(2+6), etc. The model specifications must always be grouped in threes following the two header-operands. A maximum of five models or slopes can be specified for each station.

Here is an example of a MODL command specifying two fuel models:

COMMAND?MODL 020202 9 C 3 2440 H 2 1217

We have specified for station 020202, 9 manning classes, with 2 fuel models: the first is C, slope 3, with MI90=24 and MI97=40; the second is model H, slope 2, with MI90=12, and MI97=17.

2.1.4
2.1.5

Any time that a MODL command is entered, it completely obliterates any previous model specification. The herbaceous and woody vegetation conditions are also erased. Therefore, the HERB and WOOD commands must be entered anew anytime that a MODL command is used.

***-Note: The Bureau of Land Management is using the 80th and 95th percentiles of the Burning Index. The U.S. Forest Service, the 90th and 97th percentiles. If your agency mans on an index different than the BI, enter the appropriate percentile values for that component or index.

2.1.5 Specifying the Herbaceous Vegetation Condition--The HERB Command

The HERB command permits you to pre-specify the herbaceous-vegetation-condition for each fuel model used at a given station. The specifications can be changed any time as needed. However, before fire indices can be computed for a given model at a station, an HERB command must have been entered for the model. The operands of the command are:

ID;	The 6-digit station identifier
MODEL-NAME;	A 1-letter code for the fuel model which has been previously cataloged for this station
HERBACEOUS VEG. CONDITION;	A value from 0 to 97% that represents the percent of fine fuels that are living.

To specify values for more than one fuel model, repeat the fuel model name-herbaceous condition operands. For example, if a station used models C and H, we could specify herbaceous conditions of 26 for the C model and 40 for the H model like this:

COMMAND?HERB 020209 C 26 H 40

The order of the fuel models is not important. Also, one or more conditions can be specified without affecting those previously specified for the other fuel models.

2.1.6 Specifying the Woody Vegetation Condition--The WOOD Command

The WOOD command is very similar to the HERB command, except that it is used to specify the woody vegetation condition for each model for a station. It is used in identically the same way as the HERB command, except that the woody vegetation code is entered instead of the herbaceous condition-- the values must be a 1-digit number; 5, 7, or 9 only. See RM-84 for an explanation of these codes.

The WOOD command is required only if fuel models with live woody fuels are involved (Models B and F). An example of the command is:

```
COMMAND?WOOD 020202 B 7 F 9
```

In this example we assigned a code 7 to Woody Vegetative Condition to Fuel Model B and a code 9 to Fuel Model F.

2.1.7 Listing the Station Catalog --The DESC Command

The DESC command causes the catalog for a specified station to be printed out at your terminal. The command takes one operand, the 6-digit station identifier. An example of a DESC command:

```
COMMAND?DESC 020202
```

```
STATION 20202 MEADOW:CATALOG ENTRY (V:4/7) CONTAINS:
```

```
USER-NUM=811,ELEV= 6800,AGENCY=FOREST SERV,REG=3, UNIT=KAIB
```

```
TIME=MST, OBS-TIME=1300, OPT=3, HUM-ENTRY=WET-BULB, FWX-ZN=8
```

```
MODELS:          C          H
```

```
SLOPE;           3          2
```

```
HERB.-VEG  
COND:           26          40
```

```
WOOD-VEG  
COND:           0           0
```

```
(9) BI  
LEVELS:         24/40       12/17
```

The description indicates the last modification date (month/day), and the last three digits of the owner's user-number, 811.

2.1.8
2.1.9
2.1.10

2.1.8 Removing a Station Catalog--The DEL Command

Do not delete your station catalogs at the end of each fire season! It is cheaper to leave the catalogs in the computer. The cost of catalogs is paid as a part of the AFFIRMS overhead costs.

The DEL command is used to remove a station from the catalog. The command takes just one operand, the 6-digit station identifier. An example of the DEL command:

```
COMMAND?DEL 292503
```

We have requested that the catalog for station 292503 be removed from the AFFIRMS data file. Any reference to this station will now be cited as an error.

When the catalog entry is deleted, any current OBS, FCST, or SPC weather-and/or-indices for that station will also be deleted from the C.O.F.

***-Note: If a station is deleted and then recataloged with the CTLG command, the OPT, HDEF, MODL, HERB, and WOOD commands have to be re-entered.

2.1.9 Adding or Changing the Station Name -- The NAME Command

The NAME command is used when a station was cataloged without a name or if the station name has changed and a correction to the catalog is desired.

```
COMMAND?NAME 482103 FOXPRK
```

After this command is entered, a DESC of 482103 will show FOXPRK as the station name, and FOXPRK will start the display line for 482103 if the SET NAME ON command precedes a display command. Only the owner of a catalog may change cataloged data.

2.1.10 Changing the Station Fire Weather Zone -- The FWXZ Command

Occasionally the Fire Weather Forecaster will realign the boundaries of a fire weather forecast zone. At his direction the land manager operating the affected station will use the FWXZ command to make this change. The rest of the catalog is not affected. The command form is:

```
COMMAND?FWXZ 020202 308
```

Following the execution of this command, a DESC of 020202 will show a change in the FWX-ZN value. Checking the example in Section 2.1.7, the FWX-ZN value would change from 8 to 308. Also, all forecasts or observations residing in the C.O.F. will be flagged with the new FWX-ZN number..

2.2 ** ENTERING OBSERVED FIRE WEATHER DATA **

The displaying of fire weather and fire danger information, both observed and predicted, was covered in Section 1.5. However, before information can be displayed, data must be entered into the computer for storage and/or processing. Fire management is normally responsible for putting fire weather observations into AFFIRMS. AFFIRMS then does the calculations necessary to produce the fire danger ratings and makes them ready for display upon request. The fire weather forecaster would normally be responsible for putting the necessary fire weather forecasts into the computer. In this section we will look at the OBS, SPC, and ARCH, the commands used to enter the fire weather observations.

The weather data entered with OBS and SPC commands are used to compute fire danger indices. Then the weather and the indices are stored in a large random-access data file, called a Current Observation File (C.O.F.). This file is accessible to all users. The new data replace any earlier data of the same type; that is, a new OBS would override the previous day's data entered with an OBS command.

OBS and SPC entries are treated identically, except that only OBS entries are used to determine yesterday's 100-hr. timelag fuel moisture value. The AFFIRMS program recognizes that 100-hr. timelag fuels require several days to react to weather conditions. The current 100-hr. timelag fuel moisture is computed using observed weather and yesterday's fuel moisture. If the computer does not find an OBS less than 3 days old, "yesterday's" fuel moisture is set to 10% and an information message issued. When observations have not been routinely entered, more accurate 100-hr. fuel moisture values result from entering the data using the DATE command to adjust the date, then the OBS command to enter weather data. The oldest data must be entered first. (Note that this will not archive data. The ARCH command must be used to permanently store all but today's data).

To prevent unauthorized entry of observations for a station by a user who does not have jurisdiction over that station, AFFIRMS checks to insure that the user-number under which the station was originally cataloged matches that of the user who is attempting to enter an OBS, SPC, or ARCH command. The entry is ignored unless the user-numbers match.

Shortly before midnight each day, AFFIRMS automatically copies any current OBS data from the C.O.F. into a permanent archive. If archiving of non-current data is desired, the ARCH command must be used. Data entered with this command are sent directly to the permanent archive; no indices are computed, the data are not stored in the C.O.F., hence are not accessible via the display commands.

2.2.1

2.2.1 The Basic Fire Weather Observation--The OBS Command

OPERANDS FOR THE OBS COMMAND

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-OK (see note 2)
Station #	Num.	No	6	6	010101	509999	Never
Obs. Time	Num.	No	2	2	01	24	Never
State of Wx. (see note 8)	Num.	No	1	1	0	9	Never
Dry-bulb Temp.	Num.	Optional	1	4	-100	136	Never
Hum. Entry (see note 3)	Num.	Optional	1	3	Varies	Varies	Never
ML (Morning's Lgtg. Act.Lvl.,note 9)	Num.	No	1	1	1	5	Never
Man Risk	Num.	No	1	3	1	100	Never
Wind Direct. (see note 4)	Mixed	No	1	3	Varies	Varies	Anytime
Wind Speed	Num.	No	1	2	0	99	Never
10-HR-T/L Moisture	Num.	Optional	1	4	0	99	MODL/OPT Dep.
Max. Temp.	Num.	No	1	3	Dry-blb	136	MODL/OPT Dep.
Min. Temp.	Num.	No	1	4	-100	Dry-blb	MODL/OPT Dep.
Max. RH	Num.	No	1	3	Obs.RH	100	MODL/OPT Dep.
Min. RH	Num.	No	1	3	1	Obs.RH	MODL/OPT Dep.
Precip. Dur. (see note 5)	Num.	No	1	3	-24	23	Never
Precip. Amt. (see note 6)	Mixed	Required	1	5	0.00	9.99	Never
YL (Previous Day's Lgtg.Act.Lvl.,note 9)	Num.	No	1	1	1	5	Never
Forecasted Man- Caused Risk (see note 7)	Num.	No	1	3	0	100	Never
UNKO (see note 10)	Mixed	No	0	8	Varies	Varies	Anytime

Because automatic archiving of OBS data takes place at 2300 MST each night, it is important that AFFIRMS users avoid entering OBS commands between the hours indicated below:

Time-Zone	Beginning	Ending
Bering Standard	7 p.m.	8 p.m.
Hawaiian Standard	8 p.m.	9 p.m.
Alaskan Standard	8 p.m.	9 p.m.
Yukon Standard	9 p.m.	10 p.m.
Pacific Standard	10 p.m.	11 p.m.
Mountain Standard	11 p.m.	Midnight
Central Standard	Midnight	1 a.m.
Eastern Standard	1 a.m.	2 a.m.
Atlantic Standard	2 a.m.	3 a.m.

2.2.2 The "Special" Observation and Archiving "Missed"Regular Observations--The SPC and ARCH Commands

OPERANDS FOR THE SPC and ARCH Commands

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-OK (see note 2)
Station #	Num.	No	6	6	010101	509999	Never
Obs. Time	Num.	No	2	2	01	24	Never
State of Wx.	Num.	No	1	1	0	9	Never
Dry-bulb Temp.	Num.	Optional	1	4	-100	136	Never
Hum. Entry (see note 3)	Num.	Optional	1	3	Varies	Varies	Never
ML (Morning's Lgtg.Act.Lvl.,note 9)	Num.	No	1	1	1	5	Never
Man Risk	Num.	No	1	3	1	100	Never
Wind Direct. (see note 4)	Mixed	No	1	3	Varies	Varies	Anytime
Wind Speed	Num.	No	1	2	0	99	Never
10-HR-T/L Moisture	Num.	Optional	1	4	0	200	MODL/OPT Dep.
Max. Temp.	Num.	No	1	3	Dry-blb.	136	MODL/OPT Dep.
Min. Temp.	Num.	No	1	4	-100	Dry-blb.	MODL/OPT Dep.
Max. RH	Num.	No	1	3	Obs.RH	100	MODL/OPT Dep.
Min. RH	Num.	No	1	3	1	Obs.RH	MODL/OPT Dep.
Precip. Dur. (see note 5)	Num.	No	1	3	-24	23	Never
Precip. Amt. (see note 6)	Mixed	Required	1	5	0.00	9.99	Never
YL (Previous Day's Lgtg.Act.Lvl.,note 9)	Num.	No	1	1	1	5	Never

2.2.3 Explanatory "Notes" for OBS, SPC, and ARCH Commands

***-Note 1: "Type" refers to the kind of character allowed; "Num." indicates numbers only; "Alpha.", alphabetical letters only; "Mixed", numerical or alphabetical.

***-Note 2: Under "Missing OK": "Never" means the data are always required; "Anytime" means the data are not required (but may be entered, for the record); however, if it is not entered, an M must be typed in that location; "MODL/OPT Dep." means some combinations of model and option require that the data be entered (see the OPT command (Section 2.1.3) for further details).

2.2.3

- ***-Note 3: Humidity may be entered as either wet-bulb (1), relative humidity (2), or dewpoint temperature (3). The selection is made using the HDEF command. The selection once made stays in effect for all future entries until another HDEF command is given (see Section 2.1.2).
- ***-Note 4: Wind direction may be entered in regular 8-Pt. 1-digit form, in 16-Pt. 2-digit form, in degrees-of-the-compass 3-digit form, or in 16-point letter-codes. Thus, all of the following would give the same wind direction (the direction is stored and archived as degrees-of-the-compass):
1, 02, 045, NE.
- ***-Note 5: "Fuels Wet" can be indicated by entering the Precip. Dur. as a negative number. For example, if the actual precip. duration was 3 hours, you would enter -3 if fuels were still wet. If snow or ice still cover the sticks, but no precip. has fallen that day, enter -0. Any negative number sets all the indices to zero.
- ***-Note 6: For an amount less than .005 inches enter "T" (trace).
- ***-Note 7: Forecasted Man-Caused Risk is entered in OBS commands only. This value is then automatically used as the Man-Risk in any subsequent FCST display. This feature permits the Man-Risk to be entered at the Forest level (via OBS). It is combined with the Lightning-Risk calculated from the lightning forecast made by the weather service forecasters (via FCST or ZONE) to generate the total risk used to calculate the indexes.
- ***-Note 8: States of the weather 5, 6, or 7 (drizzle, rain, and snow), cause all indexes to be set to zero because generalized precipitation over the protection unit is assumed. States of weather 8 and 9 assume localized precipitation and will not zero out all indexes.
- ***-Note 9: ML is the lightning activity level which best describes the lightning situation from midnight to basic observation time. YL is the lightning activity level for the entire previous day. YL can't be less than the ML from yesterday's observations.
- ***-Note 10: The UNKO field consists of 0 to 8 letters or numbers in any format. (Do not use spaces, commas, semi colons or slashes). It may be used to send any type of miscellaneous information in special codes; e.g. cumulus cloud build-up state. The UNKO data is displayed without a heading on the DSPW OBS command. The data is not archived.

2.2.4 Examples of Use of OBS, SPC, ARCH Commands

Here are examples of OBS and SPC commands:

```
COMMAND?OBS 020202 13 1 95 25 1 37 NE 12 35 100 69 35 21 1 .01 1 44
```

```
COMMAND?SPC 020202 13 1 95 25 1 37 NE 12 35 100 69 35 21 1 .01 1
```

***-(Note that the SPC is identical to the OBS command if the predicted Man-Risk is removed. See Appendices J-2 and J-3 for sample forms,)

Here is a typical sequence showing the use of the ARCH command to archive data which was not entered the day the observations were made. First, the system date is set as necessary (See Section 1.4.6). Then, one or more ARCH commands follow. The Break-Key is hit after the series to revert the date back to today's. If a second set of ARCH commands follow the first, don't hit the Break-Key, but rather just enter another DATE command and continue with the next ARCH set.

***-Note: If the herbaceous vegetation condition has changed during the inactive period that the ARCH commands covers. The date must be reverted to today (use Break-Key) before a HERB or WOOD command can be given.

```
COMMAND?DATE 73/04/15      (First we set the date back as needed)
```

```
EXC04I DATE OVERRIDDEN 73/04/15
```

```
COMMAND?ARCH 020202 13 1 85 35 1 45 NW 7 23 90 68 52 25 1 .03 2
```

(This archives the stale data for 020202-See Appendix J-3 for sample form)

```
COMMAND?ARCH 020601 13 1 84 37 1 52 N 6 26 89 67 45 31 0 0 1
```

(DATE command still in effect, archiving for 020601)

```
COMMAND?      (We now hit the Break-Key to revert the date)
```

```
EXC09I DATE REVERTED      (computer response)
```

```
COMMAND?HERB 020202 C 14      (Changing herbaceous vegetative condition for succeeding
                                ARCH or OBS commands.)
```

```
COMMAND?DATE 75/04/16      (Continue the archiving session)
```

```
COMMAND?ARCH 020202 13/4/48 90 1 25 NW 4 20 50 35 100 80 -5 .47 1
```

(This archives weather data for April 16, 1975 including 14% herbaceous vegetative condition which was put in semi-permanent storage by the HERB command.)

2.2.4
2.3

For greatest efficiency, you should use a series of ARCH commands (for several days and/or stations) in one session, rather than singly. If several ARCH commands are entered for the same date and station, only the last entry will be permanently saved. This feature allows correction of errors made in archiving data.

***-Note: In Appendix J, Exhibits 1 and 2 are worksheets which can be reproduced and used to assist in the encoding of OBS, SPC, and ARCH commands. Exhibit 1 is for OBS commands and Exhibit 2 is for SPC and ARCH commands. The SPC and ARCH commands are identical to the OBS command if the last column - Man-Risk - is left off the OBS form.

2.3 Obtaining the Fire Weather Forecast Narrative

Predicted fire weather usually consists of both forecasted weather elements (temp., wind, etc.) and a narrative describing the expected weather. To obtain the narrative the FILE LIST FWX_{nnn} command is used. The *nnn* represents the 3-letter airport abbreviation used by the National Weather Service. (See Section 1.2.7 for instructions on obtaining the 3-letter abbreviations from the USERLIST).

A sample command is:

COMMAND?FILE LIST FWXBOI

This command would give you the current forecast fire weather narrative issued by the Boise Office of the National Weather Service.

3.
3.1
3.1.1

3. USING AFFIRMS -- THE FIRE WEATHER FORECASTER

3.1 ** ENTERING FIRE WEATHER FORECASTS **

AFFIRMS allows considerable flexibility to the forecaster as regards the entry of forecasted weather information. The FCST command is used to enter forecasts of the absolute values of meteorological variables for each station. The ZONE command allows a trend forecast to be applied to a group of stations within a fire weather forecast zone.

3.1.1 The Point Forecast-- The FCST Command

The weather data entered using the FCST command is used to compute predicted fire danger indices. Then the weather and the indices are both stored in a large random-access data file, called a Current Observation File (C.O.F.). This data file is accessible to all users. The new data replace any earlier data of the same type; that is, a new FCST would override the previous day's FCST. FCST entries are flagged as being forecasts. Data entered with FCST will be given the current date plus one day (that is, tomorrow's date).

OPERANDS FOR THE FCST COMMAND

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-OK (see note 2)
Station #	Num.	No	6	6	010101	509999	Never
Valid Time	Num.	No	2	2	01	24	Never
State of Wx.	Num.	No	1	1	0	9	Never
Dry-blb.Temp.	Num.	Optional	1	4	-100	136	Never
Relative Humidity (see note 3)	Num.	Optional	1	3	1	100	Never
AL (Afternoon's Lgtg.Act.Lvl.)	Num.	No	1	1	1	5	Never
TL (Tomorrow's Lgtg.Act.Lvl.) (see note 4)	Num.	No	1	1	1	5	Never
Wind Direct. (see note 5)	Mixed	No	1	3	Varies	Varies	Anytime
Wind Speed	Num.	No	1	2	0	99	Never
10-HR-T/L Moisture (see note 6)	Num.	Optional	1	4	0	200	MODL/OPT Dep.
Max. Temp.	Num.	No	1	3	Dry-blb.	136	MODL/OPT Dep.
Min. Temp.	Num.	No	1	4	-100	Dry-blb.	MODL/OPT Dep.

3.1.1
3.1.2

OPERANDS FOR THE FCST COMMAND (continued)

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-OK (see note 2)
Max. RH	Num.	No	1	3	Obs.RH	100	MODL/OPT Dep.
Min. RH	Num.	No	1	3	1	Obs.RH	MODL/OPT Dep.
Precip. Dur. 1 (see note 7)	Num.	No	1	2	0	16	Never
Precip. Dur. 2 (See note 7)	Num.	No	1	2	-8	7	Never

3.1.2 The Trend Forecast--The ZONE Command

The ZONE command is designed to simplify the work of the fire weather forecaster. When the forecaster normally issues trend forecasts for a fire-weather zone instead of specific values for individual stations, the ZONE command should be used instead of the FCST command.

When the forecaster enters a ZONE command, the trends are automatically applied to all current observations for stations located in that zone. Then, AFFIRMS generates forecast entries for each station, just as if the forecaster had entered a separate FCST command for those stations.

If one or more stations in the zone require a special forecast (that is, the trend doesn't apply to them), the FCST command can be used to override the ZONE forecast.

If experience shows that a station's fire weather zone should be changed, use the FWXZ command (Section 2.1.10). This command permits a change of zone number without the expense and effort of recataloging the station.

***-Note: If the current day's observation for a station is not entered into AFFIRMS before the ZONE forecast, there will be no forecast made for that station that day. If there are no current OBS for any station in a zone, the forecaster will receive a message with that information. A series of spot forecasts would then be needed for the missing stations. Since FCST commands contain absolute weather elements rather than trends, the computer can produce a forecast without current weather observations.

OPERANDS FOR THE ZONE COMMAND

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-OK (see note 2)
Zone Number	Num.	No	3	3	001	999	Never
Region Number	Num.	No	1	2	1	10	Never
Valid Time	Num.	No	2	2	01	24	Never
State of WX (see note 10)	Num.	No	1	1	0	9	Never
Dry-blb. Temp. Trend	Num.	Optional	1	3	-30	+30	Anytime
Rel-Hum Trend (see note 3))	Num.	Optional	1	3	-50	+50	Anytime
Wind-Speed Trend	Num.	No	1	3	-30	+30	Anytime
Precip. Dur. 1 (see note 7)	Num.	No	1	2	0	16	Never
Precip. Dur. 2 (see note 7)	Num.	No	1	2	-8	7	Never
Max.-Temp. Trend (see note 8)	Num.	No	1	3	-30	+30	Anytime
Min.-Temp. Trend (see note 8)	Num.	No	1	3	-30	+30	Anytime
Max.-RH Trend (see note 8)	Num.	No	1	3	-50	+50	Anytime
Min.-RH Trend (see note 8)	Num.	No	1	3	-50	+50	Anytime
AL (Afternoon's Lgtg. Act.Lvl.,note 4)	Num.	No	1	1	1	5	Never
TL (Tomorrow's Lgtg. Act.Lvl.,note 4)	Num.	No	1	1	1	5	Never
10-HR-T/L Trend	Num.	Optional	1	5	-25.0	25.0	Anytime

3.1.3 Explanatory "Notes" for the FCST and ZONE Commands

***-Note 1: "Type" refers to the kind of character allowed; "Num." indicates numbers only; "Alpha." letters only; "Mixed", numeric or alphabetic.

***-Note 2: Under "Missing OK"; "Never" means the data are always required; "Anytime" means the data are not required but may be entered for the record (if it is not entered, an M must be typed in to fill that location). When an M is permissible and is used with the ZONE command, it will be treated as a zero trend (persistence).

3.1.3
3.1.4

***-Note 3: For FCST commands, the humidity variable is automatically assumed to be relative humidity, regardless of the HDEF in effect for the station.

***-Note 4: AL is the predicted lightning activity level (LAL) for this afternoon and evening from basic observation time to midnight. TL is the predicted LAL for tomorrow, midnight to midnight. The computer will use the highest of ML (See note 9, Section 2.2.3) AL, and TL to calculate Tomorrow's Lightning Risk.

***-Note 5: Wind direction may be entered in regular 8-pt. 1-digit form, in 16-pt. 2-digit form, in degrees of the compass 3-digit form, or in 16-point letter-codes. Thus, all of the following would give the same stored wind direction (the direction is stored internally as degrees-of-the-compass):

1, 02, 045, NE,

***-Note 6: Used if entered in FCST commands. If entered as missing, it is computed from the temperature and humidity forecast for basic observation time.

***-Note 7: "Fuels Wet" can be indicated by entering the Precip. Dur. as a negative number. For example, if the precip. duration was forecasted to be 3 hours, and fuels were expected to be wet at the forecast valid time, you would enter -3. Precip. Dur. 1 is for the first 16 hours; Precip. Dur. 2 for the last 8 hours for the 24-hour period between basic observations. If you expect the fuels to be covered by ice or snow which fell before this 24-hour period, predict a -Ø (minus zero) for Precip. Dur. 2. All indices will be forced to Ø (zero) if a negative duration is forecast.

***-Note 8: If it is desirable to forecast the average 24-hour temperature and relative humidity, enter the same trend for both the Max. and Min. forecasted values. This will have the same effect as trending the averages.

***-Note 9: If the 10-HR-T/L Trend is entered as missing or is simply left out, the forecasted 10-HR moisture will be computed as shown in RM-84. If a trend is entered, it will be applied to the 10-HR T/L moisture value taken from the observation on which the forecast is based.

***-Note 10: States of weather 5, 6 or 7 (drizzle, rain, and snow) cause all indices to be set to Ø (zero).

3.1.4 Temporary Station Groupings--The STOW Command

There are times when fire weather forecasters wish to apply the same station forecast to more than one station, or the same zone forecast to more than one fire weather zone.

The STOW command permits this kind of blanket forecast to be made. The STOW command places up to 19 station-numbers or 19 fire-weather zone numbers into a temporary "stow" group within AFFIRMS. This "stow" exists only for the duration of that AFFIRMS session. The command takes two forms:

COMMAND?STOW ID, llllll, mmmmmmm, nnnnnnn (where llllll, etc. are station identifiers)
COMMAND?STOW ZONE, lll, mmm, nnn (where lll, etc. are fire weather zone identifiers
in the Forest Service Region)

The "stow" is held until another STOW overrides it.

The "stow" is then utilized by using the word STOW in place of either the zone-number (as in a ZONE command) or the station-number (as in a FCST command).

***-Note: The "stow" is eliminated at the end of the AFFIRMS session or whenever another STOW command (of the same type, ID or ZONE) is entered.

3.1.5 Examples of Use of FCST, ZONE and STOW Commands

Here are examples of the FCST and ZONE forecasts:

COMMAND?FCST 020202,13,1,95,25,2,3,NE,12,M,100,71,36,21,1,4
(There is no forecast of the 10-HR T/L fuel moisture.)

COMMAND?ZONE 311,3,13,1,5,-2,0,1,5,3,-2,-2,1,1,-5

In the FCST example, the prediction relates to station 020202 only; in the ZONE example, the trends will be automatically applied to the current observations of all the stations in forecast zone 311 in F.S. Region 3.

***-Note: In Appendix J, Exhibits 3 and 4 are worksheets which can be reproduced and used to assist in the encoding of FCST and ZONE commands.

Here now is an example of using the STOW command. First, tell the computer which stations (forecast zones) that the FCST STOW (ZONE STOW) is to be applied to, and then enter the appropriate STOW command.

COMMAND?STOW ID,020202,020203,020204

COMMAND?FCST STOW,13,1,95,25,2,3,NE,12,M,100,71,36,21,1,3

The identical FCST command will be applied to stations 020202, 020203, and 020204.

COMMAND?STOW ZONE,301,302,303

COMMAND?ZONE STOW,3,13,1,+5,-2,+2,0,1,+5,+4,-2,1,1,-5

The identical trends specified in the ZONE command will be applied to all stations in fire weather zones 301, 302, 303, in Forest Service Region 3.

3.1.5
3.1.6

***-Note: The F.S. Region number is the first operand after ZONE STOW verb. Before a ZONE STOW... command can be used, a STOW ZONE command must precede it sometime during the session. Likewise, a FCST STOW... command must be preceded sometime during the session by a STOW ID... command. Failure to do this will result in an error message and a request for a new command.

3.1.6 The Forecast Narrative

It is customary for narrative descriptions of synoptic patterns, trends, outlooks, etc. to be part of the fire weather forecast. AFFIRMS allows such information to be communicated to the fire manager through a text file (see the FILE MAKE command, Section 1.7.1). It is only necessary for the fire manager to know the name of the text file that contains the narrative. He can retrieve the narrative with the FILE LIST command.

File names for these narratives are designated as follows:

FWXwww

where the www is the alphabetic identifier of the Weather Service Forecast office. For instance, FWXLAX represents Los Angeles. The alphabetic identifiers for all airports entering data into AFFIRMS are in the USERLIST. Section 1.2.7 explains how to obtain the USERLIST.

If several narratives are routinely issued from one forecast office, they might be designated by appending a number. For instance: FWXLAX1, FWXLAX2, and FWXLAX3.

An example of a forecast narrative can be found in Appendix A.

3.2 ** AMENDING THE FIRE WEATHER FORECAST **

If a forecast, whether issued as a FCST or ZONE command requires amending the same day as the original forecast, no special procedures are required. Simply enter the amended forecast the same way as you would enter the original.

However, if the forecast requires amending the next day (the day the original forecast was valid for), the DATE command must be used first (see Section 1.4.6). It is necessary because the date assigned to the forecast by the computer is the current date plus 1 (Section 3.1.1). If you attempt to enter a ZONE command without resetting the date, you will get an error message because there will be no observations found in the C.O.F. with today's date. If you use the FCST command, the valid date would be tomorrow's (today's date plus 1).

Example of amending a forecast on June 28 which was originally issued on June 27:

COMMAND?DATE 74/06/27

EXC041 DATE OVERRIDDEN 74/06/27

COMMAND?ZONE 311,3,13,2,7,1,4,2,1,4,4

COMMAND? (Operator hits Break-Key to revert date)to June 28)

EXC091 DATE REVERTED (Computer response)

COMMAND? (continue business).

4.
4.1
4.1.1
4.1.2
4.1.3

4. U S I N G A F F I R M S -- T H E R E G I O N A L F I R E M A N A G E R

4.1 ** SCREENING LARGE STATION GROUPS **

To permit managers with large numbers of stations to selectively display a few stations, the screening SET commands were introduced.

4.1.1 Screening by Manning Class -- The SET MC Command

In the following example a user wished to sort through all 170 California stations and only see these stations that were in manning plans 4+ and 5:

COMMAND?SET MC 4+

COMMAND?DSPX OBS STAT 04

The following values are possible MC minimums:

Ø 1- 1+ 2- 2+ 3- 3+ 4- 4+ 5

4.1.2 Screening by Adjective Class -- The SET AC Command

In the following example the manager would see only those stations in Very High or Extreme Adjective Class:

COMMAND?SET AC VH

COMMAND?DSPX OBS STAT 04

The following values are acceptable AC minimums:

O LO MD HI VH EX

4.1.3 Double Screening

As was pointed out in Section 1.4.9, all SET commands can be mixed on one line. In this example, the user has said "show me only those stations with MC equal to, or above 4+, AC of EX, and produce these displays with station names."

COMMAND?SET MC 4+,AC EX,NAME ON

***-Note: To return the SET command above to the "normal" state, either sign off or:

COMMAND?SET MC Ø,AC Ø,NAME OFF

4.2
4.3
4.3.1

4.2 ** MONITORING REGIONAL OBSERVATIONAL ACTIVITY **

Each night at 2300 MST the archiver program searches the current observation file and copies that day's OBS records into permanent storage. This copy process produces an accounting file indicating how many new records originated in each Forest Service Region. This example shows how this accounting file may be listed:

COMMAND?FILE LIST ARCHSTAT

```
ARC01I  START  10/22/74  AT  23:01MDT
ARC03I  REG.   1,    0 RECS.
ARC03I  REG.   2,   20 RECS.
ARC03I  REG.   3,   18 RECS.
ARC03I  REG.   4,   43 RECS.
ARC03I  REG.   5,  168 RECS.
ARC03I  REG.   8,    0 RECS.
ARC03I  REG.   9,   11 RECS.
ARC03I  REG.  10,    0 RECS.
ARC02I      3 RECORDS COPIED FROM MODS
ARC08I  STOP   10/22/74  AT  23:04MDT  ( 56.5 CRU)
```

The line referring to records copied from MODS reports on the total numbers of observations entered with the DATE-ARCH command combination.

Please inform the AFFIRMS staff of large changes of use such as many stations coming on the system in the spring and terminating use in the fall.

4.3 ** LINKING TO ANCILLARY ROUTINES **

Several Ancillary Routines have been provided to organize and display the data base supporting the AFFIRMS system. The objective is to provide the Regional or State level manager the ability to get an overview of what is being done in his area. These routines can be accessed via the LINK command.

4.3.1 Summarized Station Catalogs for Regional Areas --

The LINK CATLDUMP Command

The routine produces a list of all the stations cataloged within a particular Region. The total station catalog is condensed into one line containing station number, elevation, time zone, Forest or unit abbreviation, operating agency code, basic observations time, Fire Weather Zone, station name, and the AFFIRMS user number of the owner.

4.3.1
4.3.2

Example:

COMMAND?LINK CATLDUMP

**AFFIRMS ANCILLARY ROUTINES: CATALOG DUMP

DO YOU WANT ALL REGIONS (YES/NO)?NO (You type in Yes or No)

WHICH REGION NUMBERS?9 (You supply the region number)

STATIONS STASHED IN CATALOG REGION 9:

STATION	ELEV	ZONE	FOR.	REG.	AG.	TIME	FWX	NAME	USER
202902	1050	EST	HMNF	9	1	14	945	MIO	904
203802	832	EST	HMNF	9	1	14	944	BALD	904
236401	1200	CST	NFIM	9	1	13	976	SALEM	905
238601	1281	CST	NFIM	9	1	13	978	AVA	905
239101	467	CST	NFIM	9	1	13	977	DONAHN	905
270301	461	EST	WHMT	9	1	13	10	CONWAY	922
430802	1395	EST	GMNF	9	1	13	780	BRDLOF	920
431101	670	EST	GMNF	9	1	13	782	TABOR	920
431202	880	EST	GMNF	9	1	13	780	ROCH	920
464203	2200	EST	MONO	9	1	13	924	MARLIN	921
470205	1600	CST	CHEQ	9	1	14	964	INO	902
470802	1600	CST	CHEQ	9	1	14	963	CLMLKE	902
471101	1580	CST	NICL	9	1	13	960	LAONA	906
471201	1560	CST	NICL	9	1	13	960	LONGLK	906
472001	1300	CST	NICL	9	1	13	955	LAKEWD	906

TOTAL OF 15 STATIONS IN REGION

COMMAND?

4.3.2 Listing S.I.G. Contents -- the LINK SIGDUMP Command

This routine displays an accounting of all the S.I.G.'s giving the S.I.G. number, the owner, date of last modification, and the station numbers that the owner inspects on a regular basis. The example has been cut short to save space, but had it run to completion, it would have returned with the prompter "COMMAND?".

4.3.2
4.4

COMMAND?LINK SIGDUMP

**AFFIRMS ANCILLARY ROUTINES: SPECIAL-INTEREST GROUP DUMP
WANT STATION NUMBERS (YES/NO)?YES

CURRENTLY ASSIGNED S.I.G.'S
AS OF 15:46GMT 12/24/74

NUM.	OWNER	LAST-MOD	STATIONS				
001	304	7/74	20209	20203			
002	304	7/74	20202	20207	20210		
003	310	7/74	20501	20502	292001	292005	
004	305	7/74	21201	21202	21301	21403	
005	501	7/73	45326	45318	45328	45323	45301
			45325	45305	45313	45321	45324
			45311	45307	45316	45306	
006	508	8/73	41406	41005	41101	41503	41402

***-Note: The objective in producing this listing is to help call attention to inefficient operations. The S.I.G. proves to be more expensive than any other display scope (see 1.5.4) except the FOR and UNIT until the group contains 5 or more stations. On that criterion, S.I.G.'s 001 through 004 should be emptied and a LIST command used instead.

4.4 ** COMPUTER PORT ACCESS CHANGES **

G.E. computer access numbers are occasionally changed and new numbers made available. For this reason, G.E. has provided a "Free" user number that announces changes in the existing network of computer ports. These changes are noted against a basic list of telephone numbers called the International Access Directory. This publication is available from the local G.E. business office on the assurance that your office is a TIMESHARE customer.

The following example illustrates this service:

HH

U#VHA03000 (free GE User Number)

THIS PROGRAM PROVIDES UPDATES TO THE G.E. INT'L ACCESS DIRECTORY:

DATA ON FILE: CHANGES FROM 10/01/74 THRU 12/13/74

OPTION 1: ALL CHANGES ON FILE

OPTION 2: ALL CHANGES SINCE A SPECIFIED DATE.

OPTION 3: ALL CHANGES FOR A SPECIFIED STATE/PROVINCE/COUNTRY.

OPTION?3 (You specify option)

NAME OF STATE/PROVINCE/COUNTRY ?CALIFORNIA (You specify state)

G.E. INTERNATIONAL ACCESS DIRECTORY UPDATES

REFERENCE WHITE BOOK : PUBLISHED OCT. 1974

CHANGES FROM 10/01/74 THRU 12/13/74

	ACCESS TEL #	CUST SERVICE	DATE	CHANGE
	-----	-----	-----	-----
CALIFORNIA				
BORON	(714) 726-6131	(800) 638-2960	10/02/74	DISCONNECT
BORON	(714) 762-6131	(800) 638-2960	10/02/74	NEW NUMBER

* - INDICATES 15 CHAR/SEC SERVICE OR LESS.

APPENDICES

APPENDIX AExamples of Typical Sessions with AFFIRMS

After you have signed on to AFFIRMS (Section 1.4.1), the program will cause a prompter, the word `COMMAND?` to be printed on your terminal. The program is then ready for your first instruction. Usually, if the command is successful, you will receive no message. If anything is wrong, you will receive a message which briefly describes the problem. If you need further help, the error-codes manual will give a more complete explanation (Appendix I).

As soon as AFFIRMS has responded to your command, it will prompt you to enter a new command. This procedure goes on until you are through and wish to end the session. At this point, the `BYE` command will disconnect you from the computer.

Let's look at a typical AFFIRMS session as it may be conducted at a Forest Supervisor's Office. Following is an example of a session which might have been conducted at the Sequoia National Forest in California. Comments have been placed at the end of some commands to describe their function for you.

The fire weather observations were entered, then the fire indices for those observations were displayed. At that time, additional display commands could have been typed to ask for weather and/or indices for surrounding wildland areas--perhaps from the next Forest.

HH

U#=UAN68519,WHIZBANG,SMITH

NFDR AFFIRMS (RSH:335/25/ 4/ 5)

FOR ASSISTANCE, ENTER: HELP OR CALL (208) FTS 588-9287 or COMM 336-2200 Ext. 287

USERS: SYSTEM UPDATED LAST NIGHT. REPORT PROBLEMS TO BOB HELFMAN, FIRE LAB.

COMMAND?OBS 042697 14 0 85 52 1 100 5 12 4 86 43 M M 0 0 1 100

COMMAND?OBS 044195 14 0 78 54 1 100 4 6 3 5 76 45 M M 0 0 1 100

COMMAND?OBS 044508 14 0 76 51 1 100 5 9 5 76 47 M M 0 0 1 100

COMMAND?OBS 044712 14 0 71 47 1 100 6 12 5 76 53 M M 0 0 1 24

COMMAND?OBS 045102 14 0 67 44 1 100 8 8 6 68 36 M M 0 0 1 100

COMMAND?OBS 045201 14 0 54 29 1 100 3 12 4 54 36 M M 0 0 1 100

COMMAND?OBS 045207 14 0 69 48 1 100 2 7 5 80 25 M M 0 0 1 100

COMMAND?DSPX OBS,SIG,013 (Display indexes for S.I.G. 013)

```
-----05/06/74-----OBS-----14:17MDT-----
STA-NO  MS  DY  HR  LR  MR  IC  SC  EC  OI  BI  FLI  MC  AC
-----
42697   B1   6  13   0 100 44   5 46 14 20  25  5  VH
44195   H1   6  13   0 100 52   0 11 52  6  9  3  H
44508   C3   6  14   0 100  0   1  5  0  3  3  1  L
44712   B3   6  14   0 100  1   4 29  1 15  15  2  L
45005   B3   6  14   0 100 12  18 44 12 34  38  4  M
45103   B3   6  14   0 100  9   5 30  9 16  19  3  M
45201   B3   6  14   0 100 41  11 52 41 29  32  4  H
45207   B3   6  14   0 100 19   6 43 19 21  5  3  M
```

COMMAND?BYE (This ends the session)

SESSION COST: \$ 4.03

OFF AT 15:59MUT 05/06/74

***-Note: The station number in the above example illustrates that the computer will not print a leading "0". As shown in the OBS commands on page A-1, you must use the leading "0" when entering data.

These same observations were displayed by the fire weather forecaster using the DSPW OBS command. The forecaster then prepared two types of forecast: 1) a narrative forecast in plain language, which the forecaster stored using a specific text file name (usually the letters FWX plus the three-letter airport code, e.g. "FWXLAX" for Los Angeles), and 2) a numerical trend forecast for each fire weather zone using the ZONE command.

Late in the afternoon, the Forest Supervisor's office again called the computer and requested a display of the forecasted weather and indices plus a listing of the narrative forecast. Finally the DSPU command was used to get a weighted average forecasted fire danger for the Forest.

HH

U#=UAN68519,WHIZBANG,SMITH

NFDR AFFIRMS (RSH:335/25/ 4/ 5)

FOR ASSISTANCE, ENTER: HELP--OR CALL (208) FTS 342-9287 or COMM 336-2200 Ext 287

COMMAND?FILE LIST FWXFAT (Requests listing of the text-file which contains the forecast narrative. FAT is Fresno, Calif.)

FIRE WEATHER FORECAST...FRESNO,CALIF...MAY 7,1974...1500PDT

DISCUSSION...REMNANTS OF WEAK COLD FRONT MOVING THRU CENTRAL CALIFORNIA HAS PRODUCED SOME HIGH CLOUDINESS BUT NO PRECIPITATION IS OCCURRING. HIGH PRESSURE BOTH AT THE SURFACE AND ALOFT IS DEVELOPING ALONG WEST COAST INDICATING CLEARING AND WARMING STARTING TONIGHT. NEXT STORM SYSTEM NOW IN GULF OF ALASKA WILL BE BLOCKED FROM MOVING INTO CENTRAL CALIFORNIA.

TONIGHT...CLEARING MOST AREAS WITH PATCHES OF FOG FORMING BY MORNING ALONG COASTAL AND INLAND VALLEYS. CONTINUED COOL TEMPS.

FRIDAY...MOSTLY FAIR WITH FOG DISSIPATING DURING EARLY MORNING. SLIGHTLY WARMER AND DRIER ALL AREAS.

OUTLOOK...UPPER RIDGE BUILDING OVER STATE FOR FURTHER WARMING AND DRYING. SURFACE HIGH MOVING OVER PLATEAU TO CREATE OFFSHORE GRADIENT AND LESS CHANCE OF FOG AND LOW CLOUDS ALONG COAST.

AVERAGE TRENDS...ALL AREAS...TEMPS UP 4, HUMIDITY DOWN 4% F.M. DOWN 2%, WINDS ABOUT THE SAME WITH OCCASIONAL GUSTY N-NE

COMMAND?SET NAME ON (This causes names to be displayed rather than station numbers)
 COMMAND?DSPI FCST,ZONE 506,5 (Fire manager requests a display of the forecasted indexes for Zone 506, R-5)

-----05/06/74-----FCST-----22:18 GMT-----
 STA-NO MS DY HR DBT RH WS LR MR HB V FF 10 100 IC SC EC OI BI FLI MC AC

TOP	B3	7	14	61	67	5	0	11	0	7	10	15	13	25	5	35	3	18	19	2	M
HLSIDE	B3	7	14	60	45	7	0	21	4	5	7	10	12	40	11	50	9	29	32	3+	M
SPRING	B3	7	14	65	57	4	0	24	3	7	11	9	13	19	5	43	5	19	20	3-	M
BEAR	A1	7	14	56	48	7	25	35	10	0	12	41	13	14	3	6	9	2	2	2+	L
BEAR	B2	7	14	56	48	7	25	35	13	5	12	41	13	14	6	7	9	10	11	2+	L
WILLOW	B3	7	14	65	49	4	0	49	5	5	9	9	15	30	7	45	15	22	25	3-	M

} (multiple fuel models)

COMMAND?DSPW FCST,ZONE,506,5 (Fire manager requests a display of the forecasted weather for Zone 506, R-5)

```
-----05/06/74-----FCST-----22:20 GMT-----
STA-NO DY HR W DBT DPT RH AL TL DIR WS TMX TMN HMX HMN P1 P2
-----
TOP      7  4  0  61  50  67  1  1      5  70  46 100  49  0  0
HLSIDE   7  4  0  60  39  45  1  1      7  69  33 100  33  0  0
SPRING   7  4  2  65  49  57  1  1      4  73  48 100  43  0  0
BEAR     7  4  2  56  37  49  1  1      7  60  49  51  42  0  0
WILLOW   7  4  1  65  45  49  1  1      4  65  40 100  49  0  0
```

COMMAND?SET DAYS -1

COMMAND?DSPU FCST 5,044712B3 25,045102B3 10,045207B3 30,&

OK MORE?045296B2 20,045305B3 15 (Fire manager requests a weighted fire danger rating for 5 stations)

```
----05/06/74-----FCST-----22:20GMT---
      DY      IC      MC      AC
-----
      7      20      3-      M
```

COMMAND?BYE

SESSION COST: \$ 3.34

OFF AT 16:22PDT 05/06/74

APPENDIX B.

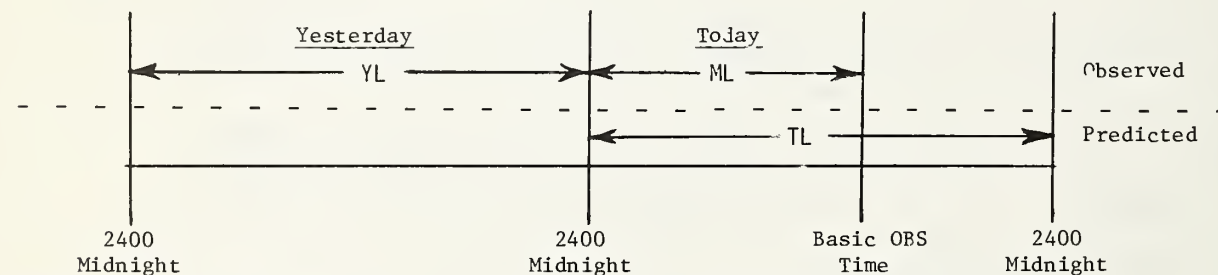
How AFFIRMS Determines Lightning Risk

As explained in RM-84, lightning risk (LR) is meant to account for fires set by lightning on the preceding day (holdovers) as well as fires set during the day being rated. In order to do this, a lightning activity level (LAL) for both days is needed.

Today's Lightning Risk

Let us first look at the problem of determining the LR for "today". First of all, we need a LAL which represents yesterday's lightning occurrence. Next, we need a LAL to represent today's lightning situation. What information do we have to work with? The observer has reported a LAL in Col 37 of the D-9a for yesterday; so that takes care of the first LAL. For today, the computer has a choice; it can either use the LAL reported by the observer for the period midnight to basic observation time (Col 11, D-9a), or it can use the LAL predicted by the fire weather forecaster for all of today. The computer will choose the higher of the two to use with yesterday's LAL to calculate today's LR.

Let's show this diagrammatically.



Where:

"YL" is the observed LAL for yesterday (Col 37, D-9a)

"ML" is the observed LAL today since midnight (Col 11, D-9a)

"TL" is the LAL predicted for all of today.

EXAMPLE

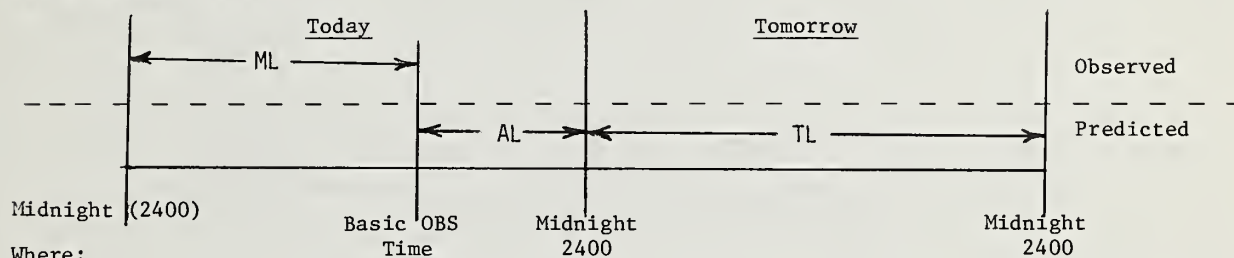
The observer reports yesterday's LAL (YL) as a 4 and this morning's LAL (ML) as a 2. The fire weather forecaster predicted a LAL (TL) of 4 for today. Since the TL is greater than ML, the computer will use 4 for today's LAL. Hence, the computer calculates today's LR as 50.

You can get the same answer by going to Table E-1, RM-84 (p. 23). At the intersection of the row indexed by YL (4) and the column indexed by TL (4), is the LR value 50.

Tomorrow's Lightning Risk

To derive "tomorrow's" LR, LAL's for today and tomorrow are needed. For today's LAL the computer must choose between the LAL reported by the observer for the period midnight to basic observation time (Col 11, D-9a) and the LAL predicted on today's fire weather forecast for the period from basic observation today to midnight. The computer will choose the higher of the two for today's LAL. Tomorrow's LAL is predicted on the same forecast.

Let's diagram the situation.



"ML" is the LAL observed today since midnight. (Col 11, D-9a)

"AL" is the LAL predicted for the remainder of today (basic observation time to midnight) on today's forecast.

"TL" is the LAL predicted for tomorrow.

EXAMPLE

The observer reports this morning's LAL (ML) as a 2. Today's fire weather forecast predicts a LAL of 5 for the remainder of the day (AL) and a LAL of 2 for tomorrow (TL). Since AL is greater than ML, the computer will choose 5 for today's LAL. Using a 5 for today and a 2 for tomorrow the computer calculates tomorrow's predicted LR as 30.

Looking again at Table E-1, you will find a LR value of 30 at the intersection of the row indexed by AL (5) and the column indexed by TL (2).

A P P E N D I X C

How AFFIRMS Determines the Displayed Manning Class (MC)

The National Fire Danger Rating System provides six ratings for the use of the fire manager. Any one of the six may be used as the basis for determining the manning class or readiness level of the suppression organization. The OPT command permits you to specify which of those six components or indices are to be used as the Manning Index (MI). (See Section 2.1.3)

For the Forest Service at the time of this writing, the 90th and 97th percentile Burning Index values for each station's fuel models are used to determine manning classes.* These percentile values are determined from a statistical analysis of historical fire weather observations. These values provide the criteria for ranking the relative severity of the burning conditions on a given day.

The MI90 and MI97 values are employed by AFFIRMS to generate a table of test values against which the Manning Index for each model can be compared. There are always 10 such test values, corresponding to a nine-class system (nine classes plus zero).

However, the actual number of manning classes in use by a given administrative unit may be five, seven, nine or even three. For this reason, AFFIRMS always computes manning class based on a nine-class system, but what is displayed as manning class depends on a selection made when the MODL command for that station was entered. This operand, referred to in the User's Guide as "Number-of-Display-Classes" (Section 2.1.4), is used to specify whether displays for that station will show nine classes, three classes, etc.

The break-points used to determine the manning class in the nine-class system are as follows:

<u>Computed Class Level</u>	<u>Upper Value for Class</u>
0	MI=0
1	(MI90)/8
2	(MI90)/4
3	(MI90)(3/8)
4	(MI90)/2
5	(MI90)(3/4)
6	MI90
7	(MI90 + MI97)/2
8	MI97
9	More than MI97

* The Bureau of Land Management is using the 80th and 95th percentiles of the BI.

```

Computed
9-Class Level
*****
Desired # of *
Manning      *      Displayed Manning Class      *
Classes      *****
3             0      1      1      1      1      1      1      4      4      5
4             0      1      1      1      1      3      3      4      4      5
5             0      1      1      2      2      3      3      4      4      5
6             0      1      1      2      2      3-     3+     4      4      5
7             0      1      1      2      2      3-     3+     4-     4+     5
8             0      1      1      2-     2+     3-     3+     4-     4+     5
9             0      1-     1+     2-     2+     3-     3+     4-     4+     5
*****

```

A P P E N D I X DHow AFFIRMS Determines the
Displayed Adjective Class (AC)

In March 1974 at a meeting of Forest Service, BLM, and State Forestry representatives a means of specifying the level of fire danger for public information was fabricated. It was agreed that the system would be tried during the 1974 and 1975 seasons. For that reason, the AC has been incorporated in AFFIRMS. Most organizations are using the adjective class only for public information. Manning Class (Appendix C) is used for "in-house" fire preparedness information. Note that MC-3 can have an AC of Moderate, High or Very High.

The adjective class is expressed in the traditional manner as one of five levels; Low(LO), Moderate(MD), High(HI), Very High(VH), and Extreme(EX). It is derived from a combination of Manning Class and Ignition Component as follows:

Ignition						
Component	0-20	21-45	46-65	66-80	81-100	

Manning	*	Adjective Class				*
Class (MC)	*****					
0 ^{1/}	0	0	0	0	0	
1-, 1, 1+	LO	LO	LO	MD	MD	
2-, 2, 2+	LO	MD	MD	MD	HI	
3-, 3, 3+	MD	MD	HI	HI	VH	
4-, 4, 4+	MD	HI	VH	VH	EX	
5	HI	VH	VH	EX	EX	

^{1/} The "zero" is included for those cases where AFFIRMS is not determining the station MC.

How AFFIRMS Weights the Inputs to the DSPU Command

The DSPU command combines data from up to 9 fire weather stations and produces an integrated fire danger rating. The manager must select the stations to represent the area and determine the influence that each station is to have on the weighted area fire danger--that is, the station weighting factor. The only requirement of AFFIRMS is that the weighting factors of the stations within the area add up to 100 percent.

The station weighting factor is based on the manager's local experience considering such things as: percent of the total area represented by this station; resource values; historic fire occurrence; public use patterns; and other. For a complete discussion of weighting factor selection see:

(Reference: 1972. Deeming, John E. Fire Danger and Fire Weather Seminar, Interpretation and Application, p. 3).

In the case of a missing station, its weighting factor will be distributed proportionally to the reporting stations. Consider a unit with three stations as follows:

<u>Station</u>	<u>Weighting Factor (w)</u>
A	22
B	44
C	<u>34</u>
	100

If Station C fails to report, the weighting factors will be reset as follows:

<u>Station</u>	<u>Weighting Factor (w)</u>
A	$100 \frac{22}{22 + 44} = 33$
B	$100 \frac{44}{22 + 44} = 67$
	<u>100</u>

The Weighted IC

Using the above example, a weighted average IC for the Stations A, B, and C would be obtained as follows:

<u>Station</u>	<u>Weighting Factor(w)</u>	<u>IC(i)</u>	<u>(w)(i)÷100</u>	<u>AVG IC</u>
A	22	38	8.36	
B	44	47	20.68	
C	<u>34</u>	58	<u>19.72</u>	
	100		48.76	round 49

The Weighted Manning Class

The manning classes must first be determined for each station using the nine-class system. (see Appendix C). Each is then assigned a factor according to the following schedule:

<u>Manning Class</u>	<u>x</u>	<u>Class Factor (m)*</u>
0	0	0
1-	1.25	1.19
1+	1.75	1.68
2-	2.25	2.37
2+	2.75	3.36
3-	3.25	4.76
3+	3.75	6.73
4-	4.25	9.51
4+	4.75	13.45
5	5.25	19.03

$$*1_n m = x \ln 2 - \ln 2 \quad \text{where } x = 1.25, 1.75, 2.25, 2.75, 3.25, 3.75, 4.25, 4.75, \text{ and } 5.25$$

The weighted manning class would be determined as follows:

<u>Station</u>	<u>Wt. Factor(w)</u>	<u>Man. Cl.</u>	<u>Class Factor (m)</u>	<u>(m)(w)÷100</u>
A	22	2-	2.37	.52
B	44	3+	6.73	2.96
C	<u>34</u>	4-	9.51	<u>3.23</u>
	100			$\Sigma = 6.71$

The 6.71 is translated to a weighted manning class by use of the following table:

<u>Weighted Manning Class</u>	<u>$\Sigma [(m)(w) \div 100]$</u>
0	0- 0.99
1-	1.00- 1.40
1+	1.41- 1.99
2-	2.00- 2.82
2+	2.83- 3.99
3-	4.00- 5.65
3+	5.66- 7.99 ←←←
4-	8.00-11.30
4+	11.31-15.99
5	16.00

In the example $\Sigma [(m)(w) \div 100] = 6.71$. Therefore, the weighted manning class is 3+ or a High 3.

The Unit Adjective Rating (AC)

The unit adjective rating would be derived similarly to the station AC (Appendix D) except that the unit weighted IC and MC would be used.

<u>Wt. IC</u>	<u>Wt. MC</u>	<u>Unit AC</u>
49	3+	HI

A P P E N D I X FUse of AFFIRMS in Prescribed Burning Operations

AFFIRMS is designed primarily for the day-to-day processing of fire-weather observations, but the system can also be used for prescribed fires by setting up 'pseudo-stations' and processing the weather observations the same as for regular fire weather stations.

By convention, AFFIRMS considers any station number whose last two digits are between 90 and 99 as a 'pseudo-station'. Data entered for such a station are understood to be for field operational use, training, or for research; the observations are not archived. This permits you to assign a station number, enter observations for that station, and display indexes. Yet the data will not go into the permanent records.

Several days before your prescribed burn, you would enter the proper cataloging commands for your pseudo-station (see Section 2.1). When the catalog is completed, entry of the special observations can begin. Typically, personnel will visit the burn site and install a set of 10-hr fuel moisture sticks, a hygrothermograph and a rain gauge. They will then return periodically to take weather measurements and weigh the sticks. In a few days the drying trend and daily fire danger fluctuations can be examined by running the observations through AFFIRMS using standard procedures.

You should coordinate with your local fire weather forecaster during the period observations are being taken. He can obtain prescribed burn weather readings the same as routine weather observations.

If multiple weather readings are made each day in preparation for a prescribed burn (e.g. 0900, 1300, and 1800), special procedures are needed. The recommended method is to enter 1300 readings as regular OBS commands at the same time routine weather is entered. SPC commands should be used to enter additional readings and DSPX SPC commands used to display computed indexes. Three points should be remembered when using SPC commands: a) it is cheaper to enter data only once daily; b) only one SPC observation is stored per station. DSPX SPC commands must be made before an additional SPC observation is entered for that station. If you want to send two or more SPC observations for each station to the fire weather forecaster, you must construct a special file (see Section 1.7) which the weather forecaster can execute with a FILE READ command; c) SPC commands cause no change in fuel moisture contents of heavier fuels (100-hr T/L fuels). The OBS command is necessary once daily to correctly compute the 100-hr timelag fuel moisture.

A P P E N D I X GThe Format of AFFIRMS Archived Fire Weather Data

Punch Card Format (Modified) for WS Form D-9a

<u>Field Description</u>	<u>Begin Col. #</u>	<u>End Col. #</u>
Station Number	1	6
Year	7	8
Month	9	10
Day	11	12
State of Weather		13
Dry-Bulb Temp.	14	16
Relative Humidity	17	19
* 1-Hr-T/L Moist.	20	22
Herb-Veg-Cond (Model 1)	23	24
Man-Caused-Risk	25	27
Wind Direction (8 point)		28
Wind Speed	29	31
Woody-Veg-Cond (Model 1)		32
* 10-Hr-T/L Moist.	33	35
* 100-Hr-T/L Moist.	36	38
Max. Temp	39	41
Min. Temp.	42	44
Max. R.H.	45	47
Min. R. H.	48	50
Not Used		51
Precip. Duration	52	53
Precip. Amount	54	57
Lightning Act. Level	58	60
Digit "2"		61
Model 1 I.D.		62
Secondary Models:		
Model 2 I.D.		63
Model 2 Woody		64
Model 2 Herb	65	66
Model 3 I.D.		67
Model 3 Woody		68

Model 3 Herb	69	70
Model 4 I.D.		71
Model 4 Woody		72
Model 4 Herb	73	74
Model 5 I.D.		75
Model 5 Woody		76
Model 5 Herb	77	78
* Forecast Flag		79
Region Number		80

* See paragraph 6

** 1=Forecast, A or blank=OBS

Explanatory Notes for Modified WS D-9A

Card Format

The card images in the format described on the preceding page are generated by the archiving processor of the "AFFIRMS" program.

Some variations from the normal Weather Service WS D-9a form have been introduced. They are described below:

1) Because all humidity entries are converted by "AFFIRMS" to relative humidity (even though the input may have been wet-bulb, dewpoint, or R.H.) only the relative humidity is available for archiving. The presence of the digit "2" in card column 61 indicates that the data in columns 17-19 is relative humidity and not wet-bulb (which is standard for the WS-D9a).

2) The "AFFIRMS" system permits up to 5 fuel models to be associated with any given station. A separate woody-vegetation-condition and herbaceous-vegetation-condition can be specified for each model. Because later use of this data may require these conditions (for example, if live-fuels are involved), the card format has been modified to include the first model's values in the normal positions on the card (23-25 for herbaceous, 23 for woody condition. The model identifier (a letter from A through I) for the first model is then placed in column 62. The other four models have their identification herbaceous-condition, and woody-condition placed in columns 63 through 78. Subsequent processing of these card images should check for a blank Model I.D. in column 62 indicating no model specification.

3) In the Max/Min temperature and humidity fields, a value of 100 in both Max and Min indicates that both values were missing. Subsequent processing should make this check.

4) The Forest Service Region number (columns 79-80) is included for convenience in sorting by the National Fire Danger Rating Library before distribution to regional ADP offices.

5) The wind direction 8-point code in the card images has been derived from the sorted degrees-of-the-compass value. Some stations may enter wind direction in systems other than 8 point which offer more resolution, such as 16 point or degrees-of-the-comapss. Such additional resolution is, of course, lost when this conversion to 8 point is made. Missing direction is recorded in the card images as "0".

6) The 1-, 10-, and 100-hour timelag fuel moistures are only archived if actually entered (non-missing) in an observation. In all cases where these items are computed from ambient conditions, they appear in the archived records as zero or blank.

7) For the period 1973 through March 1975 "AFFIRMS" made only one consistency check on the precip. amount: values were required to be between 0 and 10.00 inches. Occasionally, field personnel would enter 9 when they should have entered .90 or .09. These three values are all valid as far as the AFFIRMS program is concerned, therefore large precipitation amounts should be viewed with suspicion for this period.

A P P E N D I X HCommon Errors

	<u>Reference</u>
1. The exact format must be used in the sign-on procedure. This requires the identification number, comma, password, comma, operators name or initials, carriage return. Spaces are not permitted.	1.4.1
2. Use the proper error correction method. The back space procedure (commonly a back arrow) to enter corrected data; the "control X" to delete an entire line; and the "break" key to stop the printing and execution of an unwanted operation.	1.3.2 1.4.4
3. Station catalogs should not be deleted at the end of each fire season. It is cheaper to leave the stations cataloged in the computer. The cost of storing the catalog is very small and is included as part of the AFFIRMS overhead charges.	2.1.8
4. Error messages should be read and the expanded explanation looked up in Appendix I. Remember, the letter at the end of the message number will tell you if the message is for information (I) and the command has been accepted; for action (A) and the command rejected; or for referral (R) to the AFFIRMS staff for corrective action.	Appendix I
5. A space is not permitted between the prompter (command?) and your command.	1.2
6. If an entire entry has been left out of an OBS command, the error message up arrow (↑) may not show the exact location of the error. (For example, if the wet bulb temperature has been left out, the error message might be that a letter entry (for wind direction) was found in a field reserved for numerals and the arrow indicates the man-caused risk field.)	2.2.1
7. When entering observations, a minus sign should be entered with the precipitation duration to show that fuels were wet or covered with snow or ice at observation time -- this causes all indexes to go to zero.	2.2.1
8. When entering observations, use a "T" for a trace of rain (less than .005 inches).	2.2.1

H-2
Reference

9. The FOR or UNIT designations on the display command cost about three times as much as LIST or ID designations that list the stations. The SIG command is inefficient for less than four stations. 1.5.1
0. Use SET DAYS -1 command before making DSPU FCST commands for tomorrows forecasted weather. The SET DAYS -1 command is not used if you are making a DSPU FCST command in the morning to cover the rest of the same day. 1.5
1. The "Break" Key terminates the FILE MAKE operation. Be sure to use a carriage return to enter the last line of text into the file before the "Break" Key is depressed. 1.7.1
2. Use a FILE LIST command to view the contents of a file. The FILE LIST is used for fire weather narratives, etc. The FILE READ command tells the computer to execute the commands in the file in the same order they are entered. 1.7
3. The name of a file cannot contain a space. 1.7.6
4. Storage costs for most files are \$1.10 per month per file. Purge old files when no longer needed. 1.7.6
5. Check to be sure a POST command has been completed before purging the file. 1.8.3
6. Be very careful in using FILE READ commands within files. A loop may result where File A instructs the computer to read File B which tells the machine to read File A. Computer costs which you pay can mount very quickly from this error. Use the "Break" Key to stop an undesired action, and a FILE LIST to view the contents of a file to determine source of errors. 1.7.3
7. A MODL command erases the herbaceous and woody vegetative conditions. New HERB and WOOD, (for Models B and F), commands must follow a MODL command. 2.1.4, 2.1.5
2.1.6

A P P E N D I X IExplanation of AFFIRMS Messages

All AFFIRMS messages consist of two parts : a brief message, preceded by a code--three letters, two digits, and a suffix letter. The suffix letter indicates the kind of message:

- A ACTION--The indicated error must be corrected by the terminal operator.
- I INFORMATION--Probably nothing wrong.
- R SERIOUS PROBLEM--Report to system staff immediately !

The following telephone numbers may be used to report SERIOUS PROBLEMS (R) with AFFIRMS. Please use the numbers in the order given:

Regular Hours	Commercial	208-336-2200, Ext. 287
Regular Hours	FTS	208-588-9287
Regular Hours	Commercial or FTS	714-787-1572
After Hours	Commercial	714-686-1968
To leave a recorded message if no answer at other numbers	Commercial	714-686-4656

* * * *

ALF01A NON-ALPHABETIC CHARACTER IN ALPHA OPERAND

A character other than A thru Z or - was found in an operand which AFFIRMS expects to be alphabetic. The up-arrow points to the defective operand.

ALF02A IMPROPER LENGTH

AFFIRMS has found more than 4 characters in an operand which was expected to be alphabetic (or mixed).

CFP02R OBS-FILE'S DIRECTORY FULL, ENTRY NOT STORED

The current observation file was found to be full. Report immediately to AFFIRMS staff since the file for the Region must be expanded or no new data can be recorded.

CTL01R CAT-DIRECTORY I/L FAILURE

The catalog-directory indicates that a given station is cataloged, but the corresponding record in the catalog does not refer to that station. Report to AFFIRMS staff for corrective action.

CTL02A INVALID STATION NUMBER

In a catalog-maintenance command, the station-number given is not 6 digits long.

CTL03A STATION NOT IN CATALOG

A request to delete, describe, or modify a catalog entry was entered for a station not previously cataloged, or one that has already been deleted.

CTL04A IMPROPER LENGTH

An operand has the wrong number of digits or letters. Refer to manual sections on CTLG, HDEF, OPT, MODL, HERB, NAME, or WOOD commands, as appropriate.

CTL05A INVALID TIME-ZONE

Time-zone must be entered as EST, CST, MST, or PST only in the Continental U.S. HST can be used for Hawaii and most of Alaska. Use BST for far western Alaska, and YST for the small part of eastern Alaska not in Hawaiian time.

CTL06A INVALID STANDARD OBS-TIME

Standard-Observation-Time must be entered as a 2-digit number between 01 and 24.

CTL07A INVALID OPTION-CODE

Option-code must be entered as a 1-digit number, 1 through 5 only.

CTL08A MODEL OPERANDS NOT IN "TRIPLES"

Following the STATION-I.D. and DISPLAY-CLASS-NUMBER in the MODL command, the operands must be entered in sets of three (MODEL-NAME,SLOPE-CLASS,MI97-MI90), one set for each model to be specified. Up to five sets are permitted.

CTL09A INVALID MOISTURE-ENTRY-CODE

In the HDEF command, the moisture-entry-code must be entered as a 1-digit number from 1 to 3 only.

CTL10R CAT.-DIRECTORY I/L FAILURE
See CTL01R for explanation.

CTL11A INVALID SLOPE-CLASS
SLOPE-CLASS must be entered as a 1-digit number, 1 through 3 only.

CTL12I CATALOG SUBSTITUTION
A station with the same number as the one being cataloged already exists in the catalog. The new entry overrides the old one. Warning: after the CTLG command has caused this substitution, the MODL, HDEF, OPT, HERB, and WOOD commands must be entered to make the catalog entry complete. The old values are not retained.

CTL13A INVALID REGION-NUMBER
REGION-NUMBER must be a 1 or 2-digit number from 1 to 10 only.

CTL16A ELEVATION NEGATIVE, OR IMPOSSIBLE FOR U.S.A.
STATION-ELEVATION must be a positive number from 0 to 20300 feet MSL.

CTL17A OPERANDS NOT IN MODEL-AND-VALUE PAIRS
In a HERB or WOOD command, a model identifier was given without a data value after it, or vice-versa.

CTL18A MODEL NOT CATALOGED FOR THIS STATION
In a HERB or WOOD command, a model identifier was specified that had not previously been cataloged for the station with a MODL command.

CTL19A INVALID HERB-VEG-CONDITION
In a HERB command, a condition value was specified as less than 0 or more than 97. 99 resides in the catalog until a valid HERB command has been entered.

CTL20A INVALID WOODY-VEG-CONDITION
In a WOOD command, a condition value was specified which was 5, 7, or 9. 0 resides in the catalog until a valid WOOD command has been entered.

CTL21A INVALID NUMBER OF DISPLAY CLASSES
In a MODL command, the number of Manning-Classes was not between 3 and 9, as required.

CTL22R STATION DOES NOT BELONG TO USER

Once a station has been cataloged, only the user who originally cataloged it may make modifications to the catalog entry. If you wish a particular station moved to your jurisdiction, and the original cataloging user agrees, have that user delete the station from the catalog with a DEL command. Then catalog it yourself, under your user-number. This security check is designed to protect your station catalog entries from unauthorized tampering.

CTL23A INVALID MANNING-INDEX SPECIFICATION

Manning-index must be specified as IC, SC, EC, OI, BI, or FLI only.
If the operand is not used, BI is used by default.

CTP01R CATALOG's DIRECTORY FULL, ENTRY NOT STORED

A station has been entered for cataloging but the catalog is already full. Report to AFFIRMS staff since the catalog must be expanded before any new stations can be cataloged.

CTP06R STATION DOES NOT BELONG TO USER

See CTL22R for explanation.

DFC01A NON-NUMERIC CHARACTER

In an operand expected to contain only a numeric value, a character other than 0 thru 9, +, - and decimal point has been found. The up-arrow indicates the defective character.

DFC02A IMPROPER SEQUENCE

In a numeric operand, one of the following errors has occurred:
+ after +, + after -, - after -, - after +, - or + after digit, more than one decimal point, or + or - after decimal point. The up-arrow indicates the defective character.

DFC03A DEC. PT. IN INTEGER FIELD

In a numeric operand, a decimal point was found when not legal for the operand in question.

DOP01I BUSY (SHARED OPEN),STANDBY:xx
DOP02I BUSY (SHARED LOCK),STANDBY:xx
DOP03I BUSY (SHARED UNLOCK),STANDBY:xx

When attempting to access a random-access community data file (C.O.F., catalog, etc.) the file was found to be busy (another user of AFFIRMS was writing in it). Your execution is suspended for 5 seconds and another try is made. The message will be repeated every third try if necessary. If the message occurs many times, you may escape the loop by hitting break to return to the COMMAND? point.

DSP01A WRONG NUMBER OF OPERANDS

Too few or too many operands were given for the command.

DSP02A INVALID SCOPE

In a DSPI, DSPW, or DSPX command, the second operand was not recognized.
Use only REG, FOR or UNIT, ID, STAT, CNTY, SIG, ZONE, or LIST.

DSP03A IMPROPER LENGTH

The operand pointed to by the up-arrow has the wrong number of digits or letters.

DSP05A INVALID REGION-NUMBER

The REGION-NUMBER given was not a 1- or 2-digit number between 1 and 10.

DSP06A BOTH STATION NUMBERS ARE MISSING

In a DSPW, DSPI, or DSPX command with ID scope at least one station number must be given. The other may be defaulted by being missing. If the first is defaulted, it is treated as 010101. If the second is defaulted, it is treated as 509999.

DSP08A INVALID STATE-CODE

STATE-CODE must be a 2-digit number between 01 and 50.

DSP09A INV ALID COUNTY-CODE

COUNTY-CODE must be a 4-digit number between 0101 and 5099.

DSP10A INVALID FOREST-CODE

FOREST NAME or UNIT NAME must be given as a 4-letter code.

DSP11A IMPROPER STATION I.D.

Station I.D. must be a 6-digit number between 010101 and 509999.

DSP12I NO DATA MEET YOUR CRITERIA

In a DSPW, DSPI, or DSPX command, no data currently in the files meet the specifications given in the command. Your SET DAYS specification may be wrong.

DSP14A S.I.G. NUMBER OUT OF RANGE

In a DSPW, DSPI, or DSPX command with SIG scope, the number of the special interest group is incorrect. Numbers must be a 3-digit number between 001 and 200. Check with AFFIRMS staff.

DSP15A INVALID TYPE-QUALIFIER

In a DSPW, DSPI, or DSPX command, only OBS, SPC, or FCST are allowed as qualifiers.

DSP16A INVALID WEIGHTING FACTOR

Weighting factor must be a number between 1 percent and 99 percent

DSP17A INVALID SLOPE-CLASS SPECIFICATION

See CTL11A.

DSP18A SUM OF WEIGHTING FACTORS IS NOT 100 PERCENT

In a DSPU command, the weighting factors must sum to 100 percent.

DSP19I NO DATA ON SELECTED DATE FOR STATION:xxxxxx

In response to a DSPU command, AFFIRMS could not locate data for the indicated station with the current SET DAYS specification. There may be data available for the station but not of the specified age!

DSP20I MODEL/SLOPE NOT AVAILABLE IN DATA FOR STATION:xxxxxx

In response to a DSPU command, AFFIRMS found data for the specified station, but the model-slope combination specified in the command could not be found in the data. Check the station catalog entry by using the DESC command.

DSP21A NO DATA AVAILABLE FOR UNIT

AFFIRMS could find no data (given the current SET DAYS specification) for any of the stations in a DSPU command.

EXC02A IMPROPER OR FUTURE DATE

In a DATE command, the fields must be entered in the order YEAR-MONTH-DAY, and the combination must be legitimate. Fields must be entered as 2 digits each.

EXC03A COMMAND NOT LEGAL AFTER 'DATE'

After a DATE command, the next command must be ARCH, FCST, OBS, ZONE, STOW, or BYE.

- EXC04I DATE OVERRIDDEN YY/MM/DD
- The DATE command just entered will remain in effect until the Break-Key is hit. This message will be printed after every command except ARCH entered from the keyboard to remind the operator that the date has been changed.
- EXC06I MSG 'xxxxxxx' FROM USER NO. xxx DATED xxxxxx:
- Precedes posted message; contains name of file, the user number of the originator, and the date it was posted.
- EXC08I FILE-MODE CANCELLED
- The Break-Key was hit when AFFIRMS was in file-mode and was reading its commands from a specified text file. The processing of the file ceases, and the terminal goes back to keyboard mode.
- EXC09I DATE REVERTED
- The Break-Key on the terminal was hit while a DATE command was in effect, causing the current date to be reinstated.
- EXC10A INVALID OPERATION
- The SET command allows seven operations: HEAD, DAYS, MEDIAN, MEAN, NAME, AC and MC.
- EXC12A INVALID DISPLAY-RANGE
- The SET DAYS command permits range from -1 to 31 days only.
- EXC14A UNEXPECTED END-OF-FILE, LAST COMMAND NOT COMPLETED
- While AFFIRMS was in file-mode (reading its commands from a text file rather than the keyboard), one of the commands in that file (such as POST, FILE LIST, etc.) required entry of a file name, but the file containing the commands did not contain a file name record. The file name record must follow the command that refers to it. Check the contents of the file with FILE LIST.
- EXC17A INVALID MANNING-CLASS 'FLOOR', ZERO USED
- In a SET MC command, the adjective class 'floor' must be specified as:
0,1-,1+,2-,2+,3-,3+,4-,4+,5.
- EXC18A INVALID ADJECTIVE-CLASS 'FLOOR', ZERO USED
- In a SET AC command, the adjective class 'floor' must be specified as:
0, L0, MD, HI, VH, or EX only.

- EXC19I PLEASE TYPE: "BYE" WHEN THE SYSTEM TYPES "READY". THANKS.
AFFIRMS attempted to terminate the session in response to your BYE command, but AFFIRMS lost control and you are connected to the operating system itself. Type BYE again. This should properly end the session.
- EXC31I REMINDER! NAMES OF CURRENTLY-MAVED FILES ARE LISTED BELOW, FOLLOWED BY LAST-DATE-ACCESSED.
- This message precedes the listing of saved file names produced by the command BYE CAT or by the command BYE when used on Mondays.
- FILO1A INVALID OPERATION
The FILE command permits only the READ, MAKE, LIST, NAME, and PRGE operations.
- FILO2I NOW EXECUTING FILE 'xxxxxxx'
A FILE READ command preceded, and AFFIRMS is taking its commands from the specified file. The keyboard is not connected to AFFIRMS and commands should not be entered until the END-OF-FILE ENCOUNTERED message is received. (This does not preclude use of the Break-Key to escape back to terminal-mode. If AFFIRMS takes an inordinate amount of time to respond to the commands in the file, you can check on your status by typing STATUS followed by carriage-return. The computer system will type RUN if you are still connected to the computer and AFFIRMS is still running.
- FILO3R SEQUENTIAL FILE READ-ERROR, CODE: xx
After a FILE LIST command was entered, a machine failure occurred while trying to read. Re-try the command; if the problem persists, contact the AFFIRMS staff.
- FILO4R 'CREATE' FAILED (PROBABLY IMPROPER FILE-NAME), CODE: xx
A machine failure occurred when setting up a new file, contact AFFIRMS staff if the the errors persist after using another file name.
- FILO5I EXISTING FILE. DO YOU WANT TO OVERWRITE (YES/NO)?
A FILE MAKE command specified the name of a file that has been previously created and is still stored. If you answer NO, the command is bypassed. If you answer YES, the file is re-created, empty, and ready for new text.

FIL07A PURGE FAILED (MAYBE NOT YOUR FILE), CODE: xx

A FILE PRGE (or FILE MAKE for an existing file) was unsuccessful, either because of a system error, or because the named file belonged to another user. Check with AFFIRMS staff.

FIL08R 'PERMIT' FAILED (TRY A DIFFERENT FILE-NAME), CODE:xx

A FILE MAKE command specified the name of a file already stored by another AFFIRMS user.

FIL10R 'DSM' FAILED, CODES: XX/XX

A system failure prevented your entered text from being stored in the named file. Contact AFFIRMS staff.

FIL11I HIT 'RETURN', THEN 'BREAK' AFTER LAST LINE OF TEXT

AFFIRMS is storing your text directly in a file. It will not respond to any commands until after the break is hit to indicate no more text.

FIL12R PRELIM. PURGE FAILED, (PROBABLY NOT YOUR FILE), CODE:xx

See FIL07A for explanation.

FIL13A LAST 3 CHARACTERS OF FILE NAME AND USER NUMBER DON'T MATCH.

All user file names must end with the last three digits of the user number under which the current session is being conducted. This will prevent identical file names being created by different users. It also makes it easier to trace files to the originator. The one exception to this rule is the names assigned to text files containing the weather forecast narrative--those must begin with FWX.

I-11

INT01A WRONG NUMBER OF OPERANDS

The number of operands given is either too few or too many for the kind of special interest group operation being performed.

 SIG nnn,ADD; Requires at least 3

 SIG nnn,DEL; Requires at least 3

 SIG nnn,LIST; Requires only 2

 SIG nnn,CLR; Requires only 2

INT02A IMPROPER STATION I.D.

See DSP11A.

INT03A INVALID OPERATION

The SIG command allows only the ADD, DEL, LIST, and CLR operations.

INT04I GROUP EMPTY

The special interest group specified contains no station-numbers. Either none have ever been added, or all have been deleted previously.

INT05A GROUP FULL

The specified special interest group already has twenty station-numbers and no more can be added. If the group became full during an ADD operation. The up-arrow will point to the first station ***not*** added to the group. Those appearing to the left of the arrow were successfully added.

INT06A S.I.G. NUMBER INVALID

The I.D. of a special interest group must be a 3-digit number between 001 and 100. Contact system staff.

INT07A S.I.G. BELONGS TO ANOTHER USER

Another AFFIRMS user has already placed station numbers in the special interest group which you have tried to modify. Use SIG 999,LIST to locate a free group.

INT08A I/O ERROR IN S.I.G. FILE, RE-TRY COMMAND

During processing of a SIG command, the interest-definition file could not be accessed because of a machine failure. Try the command again.

INT09I GROUP UNASSIGNED

The cited S.I.G. is not currently assigned to any user.

INT10R ALL GROUPS ASSIGNED, NONE AVAILABLE

Contact AFFIRMS staff immediately!

INT11I AVAILABLE GROUP:xx

In response to SIG 999,LIST AFFIRMS supplies the number of a special interest group currently 'free' and available for your use.

I-13

INT12I USER NUM:xxx LAST MOD:xx/xx GROUP CONTAINS STATION(S):

This message is the response to a SIG nnn LIST command. AFFIRMS indicates the 'owning' user's number, the month-and-year when the last modification was made (i.e., the last time a SIG nnn ADD or SIG nnn DEL command referenced this group), and the station numbers currently in the group.

LST01A IMPROPER QUALIFIER

A STOW command was entered which specified neither ZONE or ID.

LST02I LIST NOW STOWED

A STOW command was successfully processed.

LST03A IMPROPER STATION I.D.

Similar to DSP11A.

LST04A IMPROPER FIRE WEATHER ZONE NUMBER

Similar to ZON11A.

MDS01A MODEL (X) NOT RECOGNIZED

The specified MODEL-NAME is not legal. The MODEL-NAME must be a single alphabetic character between A and L only.

OBP01A STATION NOT IN CATALOG

The specified station has not been previously cataloged, or has been previously deleted.

OBP02A INVALID OBS-TIME

OBSERVATION-TIME must be a 2-digit number between 01 and 24, or a 4-digit number between 0100 and 2400, with the last 2 digits between 00 and 59.

OBP03A INVALID STATE-OF-WEATHER CODE

STATE-OF-WEATHER must be entered as a 1-digit number between 0 and 9 only.

OBP04A INVALID TEMPERATURE

DRY-BULB-TEMPERATURE must lie within the limits -100 to +136. A decimal point may be included.

OBP05A STATION HAS UNDEFINED -HDEF-

An HDEF command has never been used for this station, or was not given after the station was re-cataloged. Since no specification has been given, AFFIRMS has no way of knowing whether the humidity data in OBS or SPC commands is relative humidity, wet-bulb temperature, or dewpoint. Use the HDEF command to make the proper specification, and re-enter the observation.

OBP06A IMPROPER WET-BULB, DEWPOINT, OR REL.-HUM. ENTRY

The relative humidity, either observed or computed using the DEWPOINT or WET-BULB, has been found to exceed 100 percent, or is less than 1 percent.

OBP07A NOT ASSIGNED

OBP08A INVALID MAN-RISK OR LIGHTNING ACTIVITY LEVEL

RISK-LEVEL must be entered as a 1- to 3-digit number between 0 and 100 only; lightning-activity must be entered as a 1-digit number between 1 and 5.

OBP09A INVALID WIND DIR .

WIND DIRECTION can be entered in any of the 4 systems in common use-- 16-point-letter code (NE,S,SSW,etc.), 16-point-number code (01 for NNE, 08 for South, 16 for North, etc.), 8-point-number code (1 for NE, 8 for N, etc.), or degrees-of-the-compass (023,180,270, etc.). The data are self-identifying if properly entered. Remember that degrees-of-the-compass must always be 3 digits (use zeros as needed). 16-point number code must always be 2 digits (use a leading zero for values between 1 and 9).

OBP10A INVALID WIND-SPEED

WIND SPEED must be entered as a 1- or 2-digit number from 0 to 99 only.

OBP11A NOT ASSIGNED

I-15

OBP12A INVALID 10-HR-T/L FUEL MOISTURE

The fuel stick moisture content must be a number between 0 and 200. A decimal point is allowed (example, 12.5).

OBP13I INCONSISTENT MAX. TEMP., OBSERVED TEMP. USED: xxx

The MAXIMUM TEMPERATURE entered must be equal to or greater than the OBSERVED TEMPERATURE, and must lie between -100 and +136. If the entered value violates these limits, the observed temperature is used instead.

OBP14I INCONSISTENT MIN. TEMP., OBSERVED TEMP. USED: xxx

The MINIMUM TEMPERATURE entered must be equal to or less than the OBSERVED TEMPERATURE, and must lie between -100 and +136. If the entered value violates these limits, the observed temperature is used instead.

OBP15I INCONSISTENT MAX. HUMIDITY, OBSERVED HUM. USED: xxx

This statement indicates that you reported the 24-hour MAXIMUM HUMIDITY as less than the humidity at observation time, an obvious error. The humidity at observation time has automatically been entered as the maximum humidity during the 24 hours from yesterday's observation to today's observation.

OBP16I INCONSISTENT MIN. HUMIDITY, OBSERVED HUM. USED:xxx

Similar to OBP14I except limits are 1% and 100%.

OBP17A INVALID PRECIP. DURATION(S)

PRECIP. DURATIONS are limited to 16 and 8 hours, respectively, and their sum must be 24 or less.

OBP18A 'MAKE THEE AN ARK, GATHER THE ANIMALS 2 BY 2..

24-hour PRECIPITATION AMOUNT must be between 0 and 24.99 inches. A decimal point is required; for example, .12 for twelve-hundredths.

OBP19A INVALID LIGHTNING REPORT

LIGHTNING ACTIVITY LEVEL must be reported as a 1-digit number from 1 to 5 only.

OBP20I MODEL (X) AND OPTION (X) REQUIRE MIN/MAX TEMP/HUM

The model-option combination specified for this station requires an input which you entered as missing (M). Re-enter the observation with the required data, or change the option specifications for the station using the OPT command.

OBP21I MODEL (X) AND OPTION (X) REQUIRE 10-HR-T/L FUEL MOISTURE ENTRY

Similar to OBP20I.

OBP22A MISSING MOISTURE VARIABLE

RELATIVE-HUMIDITY, DEWPOINT, or WET-BULB-TEMPERATURE (depending on the HDEF specifications for the station) is required data and must not be entered as missing.

OBP27I WRONG NUMBER OF OPERANDS

OBS commands must have 18 operands, FCST commands must have 16, and SPC commands must have 17.

OBP29I MODEL (X) NEEDS WOODY-VEG-CONDITION

One or more models for this station need the WOODY-VEGETATION-CONDITION (for live fuels). The indices for other models for the station are computed, but those involving live fuels are not.

OBP30I MODEL (C) HAS UNDEFINED HERB-VEG-COND. INDICES NOT COMPUTED FOR THIS MODEL

The catalog for this station does not contain a valid entry for the herbaceous vegetative condition for the Fuel Model shown in parenthesis. A MODL command erases the herbaceous and wood vegetative conditions. New HERB and WOOD (for Models B and F) commands must follow the MODL command.

OBP31R STATION DOES NOT BELONG TO USER

An OBS command has been entered by a user other than the one who originally cataloged the station involved. If you wish to enter data for this station, and the user who owns the station agrees, have him delete the station; then catalog it under your user number.

OBP33A 'OBS' TIME MUST BE WITHIN 2 HOURS OF XXXX

For OBS or ARCH commands, the time of observation must be within 2 hours of the STANDARD OBS TIME specified in the station catalog.

OBP34A STOW CONTAINS NO STATION-NUMBERS

Similar to ZON08A but issued for FCST command.

OBP35I UNUSUALLY LOW STICK MOISTURE (UNDER 2.0) ACCEPTED, BUT PLEASE CHECK CALIBRATION OF SCALES AND STICKS

Stick moistures under 2 percent are very uncommon. Although AFFIRMS will accept such values, it is wise to recheck the calibration of your system for possible defects.

OBP36I 10% USED FOR 'LAST' FUEL MOISTURES, NO RECENT OBS

Whenever an OBS command is entered, AFFIRMS fetches the last observation for the station and obtains the 10-HR and 100-HR moistures. These are used in computing "today's" values. If no 'last' OBS could be found less than 4 days old, AFFIRMS assumes 10% for each 'last' value.

OBP37A NEW OBS NOT PROCESSED, PRE-DATES LAST OBS (DATED:xxxxxx)

An OBS command may be used with DATE to enter several days of stale data, usually to properly trend the 100-HR fuel moistures. Such stale OBS must be entered IN ORDER, beginning with the oldest first.

OBP38A NON-ZERO PRECIP. AMOUNT MUST HAVE DECIMAL POINT.

To reduce entry errors AFFIRMS requires that the decimal point be included unless the precipitation amount is zero. For example 32 hundredths must be entered as 0.32 or .32.

OBP39A PRECIP. DURATION INCONSISTENT WITH PRECIP. AMOUNT.

If precip. duration is entered as zero then logically precip. amount must be zero as well. On the other hand, if either is entered as a real value then both must be greater than zero.

OBP40I NO FCST LAL AVAILABLE, USED OBS. MORNING LAL: X

Today's lightning risk is computed using yesterday's LAL and the highest of today's observed LAL (ML) or the LAL forecasted for today. When a forecasted LAL is not available for today, the morning LAL is used.

OPN01I SEQUENTIAL FILE BUSY, STANDBY

A text file was in use by another user when AFFIRMS tried to access it for you. AFFIRMS keeps trying every 5 seconds; the message is printed every 15 seconds (every 3rd try). If you wish to abandon the task, you can hit break. However, the work specified in your last command will not be performed.

OPN02R SEQUENTIAL FILE OPEN-FAILURE, CODE:xx

A machine failure prevented access to a text-file. Please report the code number to system staff.

OPN03I SEQUENTIAL FILE 'xxxxxx' NOT SAVED

A FILE command was entered, specifying an 'existing' file which could not be found in the library.

OPR01R UNEXPECTED END OF BUFFER

This is a theoretically impossible condition. Report to AFFIRMS staff, along with the command which produced it.

PST01I FILE NOT CURRENTLY POSTED

A POST command with no operands (treated as a DE-POST) specified a file not currently cited in the route-file.

PST02R I/O ERROR IN ROUTE FILE, RE-TRY COMMAND

A machine failure prevented a POST command from being entered into the route-file. Try the command again; if the error persists, contact AFFIRMS staff.

PST03I REQUEST SERVICED

Processing of a POST command terminated normally.

I-19

PST04A INVALID USER-NUMBER

USER-NUMBERS must be 3 digits long, from 001 to 998 only.

PST05R ROUTE FILE FULL

All records in the route-file are currently in use. Until one of the POST entries self-destructs (that is, when delivered to all cited users), no further POST commands can be accepted. (Contact AFFIRMS staff).

SSM02R C.O.F. NOT IMPLEMENTED, REGION: XX

The Current-Observation-File for the specified Region has not been constructed. Contact AFFIRMS staff.

SYN01A NOT ASSIGNED

SYN02A INVALID SYNTAX OR LINE GARBLE

This message can arise from any number of defects in command syntax. Check that the statement is entered correctly with a legitimate command VERB and that the command VERB is followed by a blank (if there are operands).

SYN03I NOT ASSIGNED

SYN04A TOO MANY OPERANDS

The command has more operands than are legal with the particular type of command.

SYN05A UNRECOGNIZED COMMAND (OR LINE GARBLE)

The command VERB is unrecognizable. The most likely cause is failure to place the single blank between the VERB and the first operand (for those commands with operands).

SYN06I END-OF-FILE ENCOUNTERED

AFFIRMS was in file-mode and reached end-of-data in the file. The terminal awaits a new command to be entered from the keyboard.

SYN07A CONSECUTIVE DELIMITERS

Two operand separators were found without any operand data between them. This could arise from comma-after-comma, comma-after-blank, or any other such combination. This message usually arises from placing more than one blank between two operands.

ZON01A WRONG NUMBER OF OPERANDS

Too many or too few operands were specified for a ZONE command.

ZON02A IMPROPER LENGTH

The operand flagged with an arrow has too few or too many characters.

ZON03A IMPROPER REGION NUMBER

REGION-NUMBER must be between 1 and 10.

ZON04A ILLEGAL FORECAST TIME

FORECAST-VALID-TIME must be 2 digits between 01 and 24, or 4 digits between 0100 and 2400.

ZON05A EXCESSIVE TREND

One or more data trends exceeded the limits imposed in the User's Guide. A zero-trend may be entered as "M" instead of "0" (zero).

ZON06A INVALID PRECIP. DURATION (S)

PRECIP. DURATIONS are limited to 16 and 8 hours, respectively, and their sum must not exceed 24.

ZON07A INVALID LIGHTNING-ACTIVITY LEVEL

LIGHTNING ACTIVITY is limited to the range 1 to 5.

ZON08A STOW CONTAINS NO ZONE NUMBERS

A ZONE command specifying STOW rather than a single zone number has not been preceded by a STOW ZONE command.

ZON10I NO CURRENT OBS IN ZONE(S)

A ZONE command was entered but AFFIRMS could find no current (today's) OBS for any of the stations in the zone: no forecasts were generated.

ZON11A IMPROPER ZONE NUMBER

Forecast zone numbers must be entered as a 3-digit number between 001 and 999.

ZON12R ELIGIBILITY TABLE OVERFLOW, LAST STATION TRENDED:xxxxxx

A ZONE command may not trend more than 40 stations, either in a single zone or in a group of zones cited by STOW.

A P P E N D I X JEncoding Forms and Worksheets

Exhibit I	'OBS' AFFIRMS Coding Sheet	J-2
II	'SPC' and 'ARCH' AFFIRMS Coding Sheet	J-3
III	'FCST' AFFIRMS Coding Sheet	J-4
IV	'ZONE' AFFIRMS Coding Sheet	J-5
V	Station Catalog Worksheet	J-6

EXHIBIT 1

'OBS'
AFFIRMS CODING SHEET

COM- MAND	STATION NUMBER ** (6)	OBS TIME (2)	1. W (1)	DRY TEMP. (1)	HUM.* ENTRY (1)	2. ML (1)	MR (1)	WIND DIR. SPD. (1) (1)	10hr T/L (1)	TEMP. MAX. MIN. (1) (1)	% RH MAX. MIN. (1) (1)	PRECIP. DUR. AMOUNT (1) (1)	3. YL (1)	4. MR (1)	5 UNKO (0)
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---
OBS	---	--	-	---	---	-	---	---	---	---	---	---	-	---	---

1. State of the Weather
2. LAL for period since midnight to basic obs. time (ML).
3. Yesterday's 24-hour (0001 - 2400) Lightning activity (YL).

4. Tomorrow's Forecasted Man-Caused Risk
*Relative Humidity, Dew-point Temp. or Wet-bulb Temp.
**Minimum Number of Digits. "Dashes" indicate maximum length.

5. Miscellaneous information listed only on DSPW command. Data not archived.

AFFIRMS CODING SHEET

J-3

[illegible]

1. State of the Weather
2. LAL for period since midnight to basic obs. time (ML)
3. Yesterday's 24-hour (0001-2400) lightning activity level (YL).
***Not entered-- for documentation only

EXHIBIT 3

'FCST'

AFFIRMS CODING SHEET

COM-MAND	STATION NUMBER **(6)	VALID TIME (2)	1. W (1)	DRY TEMP. (1)	RH (1)	LTC ACT AL TL (1) (1)	WIND DIR. SPD. (1) (1)	10hr T/L (1)	TEMP. MAX. MIN. (1) (1)	% RH MAX. MIN. (1) (1)	PRECIP DUR. D1 D2 (1) (1)	*** DATE
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	
FCST	-----	--	-	---	--	-	--	--	--	--	--	

1. State of the Weather **Minimum Number of Digits - ***Not entered-
 "Dashes" indicate maximum for documentation
 length. only.

J-5

[illegible]

```

1. Forecasted State of the Weather
    ** Minimum Number of Digits
    ***Not entered--
        for documentation only.

```